FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

JAN 23 2019 Re: FOIA No. FY18-113
Third Response Letter

**VIA EMAIL AND REGULAR MAIL**

Mohammad Aslami
Union of Concerned Scientists
1825 K St., NW
Suite 800
Washington, DC 20006-1232
maslami@ucsusa.org

Dear Mr. Mohammad Aslami:

On August 23, 2018, you filed a request for information pursuant to the Freedom of Information Act (FOIA),[1] and the Federal Energy Regulatory Commission's (Commission) FOIA regulations, specifically 18 C.F.R. § 388.108 (2018). Specifically, you requested:

1. *All emails, email attachments, or calendar invitations/entries – from March 1, 2018 to the present – sent by or received from Travis Fisher containing certain terms.*[2]

2. *All emails, email attachments, or calendar invitations/entries – from January 1, 2018 to present – sent by or received from Anthony Pugliese containing certain terms.*[3]

On October 11, 2018, the Commission issued its first rolling response releasing 30 documents and withholding in their entirety 147 documents. On December 20, 2018, the Commission issued its second rolling response releasing an additional 30 documents and withholding in their entirety 240 documents. These responses also informed you that there are potentially numerous additional responsive documents to this request that would be released on a rolling basis.

---

[1] 5 U.S.C. § 552(a) *as amended by* the FOIA Improvement Act of 2016, Pub. L. No. 114-185, 130 Stat. 538 (2017).

[2] Terms include: Coal, Nuclear, Resiliency, Critical Infrastructure, Reliability, White House, Federal Power Act, FPA, Defense Production Act, DPA, DOE.hq.gov, EOP.gov, Perry, 202(c), McNamee.

[3] Same terms as Footnote 2.

AMERICAN OVERSIGHT

As part of this third response, staff identified an additional 40 documents responsive to your request, which will be released with redactions pursuant to FOIA Exemptions 5 and 6. *See* 5 U.S.C. § 552(b)(5) (protecting inter-agency or intra-agency memoranda); 5 U.S.C. § 552(b)(6) (protecting personnel . . . and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy). In particular, some of the requested documents consist of internal FERC officials' views, comments, preliminary thoughts, and analysis of various matters before the Commission, and have been redacted pursuant to FOIA Exemption 5. Additionally, the names and personal information of lower-level Commission employees have been redacted to protect their privacy interest, pursuant to FOIA Exemption 6.

Given the potential high volume of information requested and the amount of Commission staff time required to process any responsive documents, we will continue to process the remaining documents on a rolling basis.[4] We will endeavor to provide you with another determination within twenty business days or sooner, and complete final processing as soon as possible.

Ordinarily, any appeal from a FOIA determination must be filed within 90 days of the date of issuance as provided by the Freedom of Information Act and 18 C.F.R. § 388.110(a)(1) of the Commission's regulations. However, because your request is being processed on a rolling basis, the Commission will hold your appeal rights in abeyance pending a final determination. This will allow you to file a single appeal at the conclusion of our processing of your request.[5]

If you decide to appeal, this appeal must be in writing, addressed to James P. Danly, General Counsel, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, D.C. 20426, and clearly marked "Freedom of Information Act Appeal." Please include a copy to Charles A. Beamon, Associate General Counsel, General and Administrative Law, at the same address.

---

[4] *See S. Yuba River Citizens League v. Nat'l Marine Fisheries Serv.*, No. Civ. S-06-2845, 2008 U.S. Dist. LEXIS 107177, 47 (E.D. Cal. June 20, 2008) (supporting the practice of releasing documents on a rolling basis); *Hinton v. Fed. Bureau of Investigations*, 527 F. Supp. 223, 225 (E.D. Penn. 1981) (noting that rolling responses preserve the government's right to carefully review material while promoting FOIA's disclosure goals); *see also* U.S. Dep't of Justice, *FOIA Post*, "OIP Guidance: The importance of Good Communication with FOIA requesters," (posted 2010) (stating agencies should provide rolling responses for requests involving voluminous material).

[5] In lieu of filing a FOIA appeal with the Commission, on November 15, 2018, you filed a Complaint in the United States District Court of Columbia, designated as Civil Action No. 18-cv-02615-DLF.

AMERICAN OVERSIGHT

You have the right to seek dispute resolution services from the FOIA Public Liaison of the agency or the Office of Government Information Services (OGIS). Using OGIS services does not affect your right to pursue your appeal. You may contact OGIS by email at ogis@nara.gov; telephone at (877) 684-6448; facsimile at (301) 837-0348; or by mail to the Office of Government Information Services, National Archives and Records Administration, Room 2510, 8601 Adelphi Road, College Park, MD 20740-6001.

Sincerely,

Leonard M. Tao

Leonard M. Tao
Director
Office of External Affairs

Enclosures (40)

AMERICAN OVERSIGHT

# DOCUMENT 1

**From:** Women emPOWERing Women
**To:** FERC Community
**Cc:** Women emPOWERing Women
**Subject:** ** LAST CALL! 3 Seats Left in Tomorrow"s WEW-Workshop, "Resilience: The Key to a successful career" (Thu, June 7, 2018; 9 am to 4 pm)
**Date:** Wednesday, June 06, 2018 4:21:59 PM
**Attachments:** image001.png

Hello FERC Community,

We have 3 seats left in the *Women emPOWERing Women (WEW) ERG's* workshop, **"Resilience: The Key to a successful career"** scheduled for tomorrow. Workshop details are attached and Registration Link is included below.

**This Week's Resilience Workshop is open to all Commission employees!** Seats are limited.

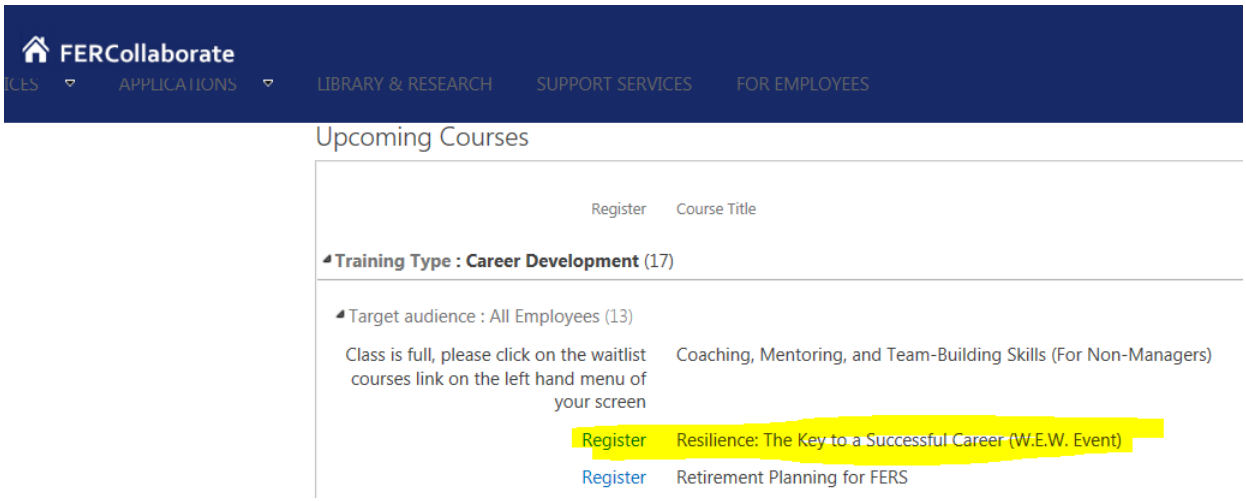
Included below is the *registration link for the WEW's* upcoming workshop, "Resilience: The Key to a Successful Career" on Thursday, June 7, 2018 (9 am to 4 pm in Room 3M-4A&B). The attached file contains the description of the workshop. Earlier, priority registration was opened up to the WEW members. Now, this workshop registration is opened up to all Commission employees.

The following registration link will take you to the FERC Collaborate page, "Upcoming Courses." Scroll down, and click on the "Resilience *" workshop title to register. (see snip tool image copied below for a quick reference)
https://ws.sp.ferc.gov/training/SitePages/Home.aspx#

If you need to cancel your registration at a later date, please cancel the registration as soon as you know of your scheduled conflict, so others can make use of the opened up spot. Thanks to OED for sponsoring this workshop!

*Please direct all questions regarding this Workshop to wew@ferc.gov.*

Thank you!
WEW Leadership Team




AMERICAN OVERSIGHT

**Brandon Luc**

**From:** Travis Fisher
**Sent:** Monday, June 18, 2018 11:22 AM
**To:** (b) (6)
**Subject:** Accepted: Resilience - Framework discussion

AMERICAN OVERSIGHT

(b) (6) [redacted]

**DOCUMENT 3**

**From:** Travis Fisher
**Sent:** Thursday, June 14, 2018 12:08 PM
**To:** (b) (6) [redacted]
**Subject:** Accepted: Resilience Memo

AMERICAN OVERSIGHT

**DOCUMENT 4**

**From:** (b) (6)
**To:** Travis Fisher
**Subject:** Automatic reply: Research: FERC"s Resilience Proceeding in the DPA Context
**Date:** Monday, June 18, 2018 5:54:06 PM

---

Hi, I am out of the office but will respond to you as soon as possible. My extension is forwarding (x6316) Thanks - (b) (6)

AMERICAN OVERSIGHT

**From:** VirtualAgenda@ferc.gov
**Subject:** CIRCULATED: RM16-00022-000 Coordination of Protection Systems for Performance During Faults and Specific Training for Personnel Reliability Standards
**Date:** Tuesday, June 05, 2018 12:28:03 PM

Docket RM16-00022-000 Coordination of Protection Systems for Performance During Faults and Specific Training for Personnel Reliability Standards has been circulated for Notational Voting.

[redacted]

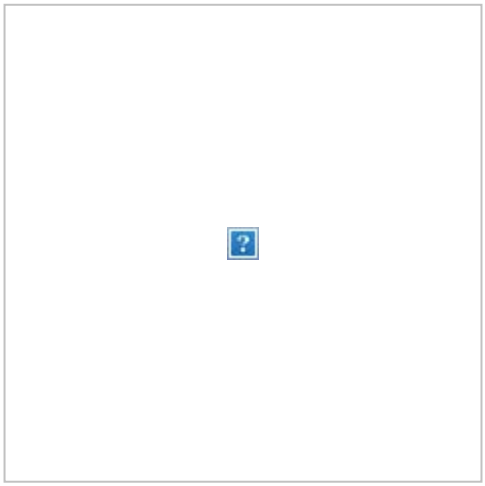
RM16-00022-000 Coordination of Protection Systems for Performance During Faults and Specific Training for Personnel Reliability Standards:

Scheduled for Notational Voting (Circulated).

AMERICAN OVERSIGHT

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Correction and Republication: Our Energy Trade Risk Dashboard is Blinking Red
**Date:** Monday, June 18, 2018 3:05:58 PM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## OUR ENERGY TRADE RISK DASHBOARD IS BLINKING RED

**CORRECTION AND REPUBLICATION. June 18, 2018, 3:00 p.m.**

*Our original description of the U.S. tariffs erroneously stated that the second wave would receive a 60-day comment period. According to a USTR notice, the tariffs will receive comment through July 31 and the USTR plans to make a final determination following the completion of that process.*

*Additionally, Figure 7 in the original version of this report left out denatured ethanol. We have corrected the figure to properly reflect items in the Chinese tariff list.*

*We do not believe that the errors materially change the conclusions in our report.*

*We sincerely regret the errors and apologize for any convenience.*

We have cautioned that U.S. energy companies face first-order risk from escalating tariffs and countermeasures, second-order risk from new barriers to market development and tertiary risk from

AMERICAN OVERSIGHT

trade frictions that could erode global energy demand. As of this afternoon, all three lights on our energy trade risk dashboard are now blinking red.

**First-order risk.** This morning, President Donald Trump announced that the U.S. will impose 25% tariffs on $50 B of Chinese goods using intellectual property and technology-related authorities conferred by Section 301 of the *1974 Trade Act* (Figure 1, inside). The new U.S. tariffs would put new energy subsectors in the crosshairs and compound January-vintage surcharges on imported solar photovoltaic cells and modules. This evening, in response, the Chinese Finance Ministry unveiled a $50 B package of retaliatory tariffs that would target most U.S. oil, refined products, LPG, coal and ethanol exports to China (as well as numerous petrochemical and vehicle categories).

**Second-order risk.** At the risk of stating the obvious, should China go through with its retaliatory tariffs, expanded Chinese purchases of U.S. energy resources to narrow the country's goods trade deficit with the U.S. would seem highly unlikely. Indeed, China could potentially reduce its oil and products purchases even without imposing new tariffs, as it did with U.S. soybean purchases.

**Third-order risk.** Inclusive of today's tariffs and Chinese reprisals, we estimate year-to-date and pending trade measures related to Presidentially directed solar, steel and aluminum tariffs at ~$38.9 B in CY2018. This may seem small relative to ~$87.5 T of CY 2018 GDP but, as we discussed last week, sustained uncertainties can deter investments necessary to spur future energy demand.

The July 6 onset date for the first wave of U.S. and Chinese tariffs leaves room for both sides to back down. Next week, the Senate Finance Committee will hear testimony from Commerce Secretary Wilbur Ross amid increasingly vocal opposition by two retiring GOP Senate Committee Chairmen – Finance Chairman Orrin Hatch (R-UT) and Foreign Relations Chairman Bob Corker (R-TN). Should the White House stand its ground, we would not rule out Congressional intervention.

At this early juncture, the universe of options appears wide open. Even so, we reiterate – once again – high and rising trade and sanctions risk to energy.

---CLEARVIEW---

2018-06-18-Trade_Risk_Dashboard_Red_CORRECTED.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

AMERICAN OVERSIGHT

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

# DOCUMENT 7

**From:** Rikardo Hull
**To:** Travis Fisher
**Subject:** ferc-centric article
**Date:** Friday, June 01, 2018 2:44:29 PM

---

https://www.bloomberg.com/news/articles/2018-06-01/the-real-barrier-to-trump-s-coal-bailout-his-own-appointees

AMERICAN OVERSIGHT

# DOCUMENT 8

**From:** Mercedes Kearney on behalf of Kevin McIntyre
**To:** Martin Kirkwood; Anthony Pugliese; James Danly; David Morenoff; Anna Cochrane; Jette Gebhart; Arnie Quinn; Jignasa Gadani; Laura Swett; Carolyn Clarkin; Nicholas Gladd; Angela Amos; (b) (6) [redacted]; Travis Fisher
**Subject:** Follow-up Meeting re: Market Issues in Resilience Proceeding

---

This meeting is to follow-up on the meeting held on April 30 regarding market issues in the resilience proceeding.

AMERICAN OVERSIGHT

**DOCUMENT 9**

**From:** Travis Fisher
**To:** Martin Kirkwood; (b) (6)
**Subject:** FW: Meeting
**Date:** Monday, June 04, 2018 5:13:00 PM

---

Along the same lines as my last email, I want you both to be aware that I had an introductory coffee meeting with Adrienne on May 4th. She's Bruce Walker's Chief of Staff, but she started that job right after I left so I had not met her before then.

(b) (5) [redacted]

---

**From:** Lotto, Adrienne [mailto:Adrienne.Lotto@hq.doe.gov]
**Sent:** Tuesday, May 01, 2018 4:51 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: Meeting

How about Friday at 11 here at DOE? If it works, just send me an invite.

Thanks,


Adrienne Lotto

Chief of Staff for Assistant Secretary Bruce J. Walker
Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117


---

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, May 01, 2018 4:48 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: Meeting

I'm wide open on Friday. Up to you when and where!

---

**From:** Lotto, Adrienne [mailto:Adrienne.Lotto@hq.doe.gov]
**Sent:** Tuesday, May 01, 2018 4:08 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: Meeting

Hey Travis-

AMERICAN OVERSIGHT

Bruce is on travel this Thursday and Friday which hopefully means I have more room in my calendar. Do either of those days work? Time?

Adrienne Lotto

Chief of Staff for Assistant Secretary Bruce J. Walker
Office of Electricity Delivery and Energy Reliability
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, May 01, 2018 3:22 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** Meeting

Hi Adrienne,

You and I are overdue for a meeting. I'm sorry for dragging my feet—it took me the better part of a month to get situated here. When might you be available to meet over a coffee? I'm flexible on time and location. Let me know!

Best,
Travis

AMERICAN OVERSIGHT

| | |
|---|---|
| **From:** | Hynes, Shaylyn |
| **To:** | Travis Fisher |
| **Subject:** | FW: Morning Energy, presented by the National Rural Electric Cooperative Association: Pruitt heads out on ethanol visit — FERC in the power bailout hot seat — Another primary Tuesday |
| **Date:** | Tuesday, June 12, 2018 6:37:30 AM |

**From:** POLITICO Pro Energy <politicoemail@politicopro.com>
**Date:** Tuesday, Jun 12, 2018, 6:43 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Morning Energy, presented by the National Rural Electric Cooperative Association: Pruitt heads out on ethanol visit — FERC in the power bailout hot seat — Another primary Tuesday

By Kelsey Tamborrino | 06/12/2018 05:41 AM EDT

*With help from Darius Dixon and Alex Guillén*

**DEPARTMENT OF INTERESTING TIMING:** EPA Administrator Scott Pruitt is expected to travel to Kansas this morning, where he'll stop by East Kansas Agri-Energy's ethanol plant in Garnett. The trip comes a week after the White House quashed the release of a plan to change the Renewable Fuels Standard amid sharp opposition from ag interests. Iowa GOP Sens. Chuck Grassley and Joni Ernst — who have been critical of Pruitt — thanked President Donald Trump for refusing to sign off on the deal that Pruitt helped craft that would have expanded sales of E15 fuel, but also allow exports of ethanol to qualify for compliance credits.

**"Mr. Pruitt is planning on being here,"** Bill Pracht, CEO of the ethanol plant, told Pro's Eric Wolff. "I was kind of surprised," he said, adding that he did not organize the visit. "He was coming to Kansas, doing one other event on a different issue, and the plant is on the way to the airport." According to a consultant with a communications firm that has been helping to organize the trip, Pruitt is also expected to visit another ethanol plant in South Dakota. Pracht said he plans to give Pruitt a tour of the plant and have the administrator meet with his board and some local agricultural groups. EPA, which typically does not disclose Pruitt's whereabouts, did not respond to requests for further details.

**ME is wondering what kind of reception Pruitt will receives during his visit,** since the administrator has drawn the ire of ethanol backers for granting dozens of ethanol compliance waivers to refiners. Ernst, herself a strong supporter of the ethanol industry, said Pruitt lied to her and other senators last year when he promised to uphold the RFS. Earlier this month, Ernst called Pruitt "about as swampy as you get," while other ethanol groups accuse him of being sympathetic to refiners. "It's clear that the refiners have the ear of Administrator Pruitt," Brooke Coleman, executive director of the Advanced Biofuels Business Council, recently told Eric. "We feel like Administrator Pruitt is going to stay at it."

**WELCOME TO TUESDAY!** I'm your host Kelsey Tamborrino, and FTI Consulting's Steve Everley was the first to correctly identify Santa Fe, N.M., as the oldest capital city in the U.S. Today's question is in honor of D.C.'s Stanley Cup parade: Which former U.S. Supreme Court

AMERICAN OVERSIGHT

justice has a hockey scholarship in his/her name? Send your tips, energy gossip and comments to ktamborrino@politico.com, or follow us on Twitter @kelseytam, @Morning_Energy and @POLITICOPro.

**FERC IN THE POWER BAILOUT HOT SEAT:** FERC's five commissioners aren't the ones crafting a broad rescue plan for the nation's economically struggling coal and nuclear power plants, but they will be probed about the issue this morning by lawmakers on the Senate Energy and Natural Resources Committee. If Energy Secretary Rick Perry follows Trump's request to protect coal power plants and moves ahead with a plan to use the Federal Power Act, its pretty likely to end up in FERC's lap. Perry can order a power plant to run, but its the regulators who determine how much the generator gets paid. Expect Sen. Maria Cantwell, the top Democrat on the energy panel, to leap into the issue headfirst and urge FERC leaders to stand firm against Perry. And if previous FERC hearings are any indication, Sens. Martin Heinrich and Angus King will delve into the issue as well.

**We'll be keeping an ear out** for where committee Republicans line up publicly on the pending power plant rescue plan, if they mention it at all. Plans that involve the Defense Production Act rather than the FPA to help the struggling plants are likely to need Congress to sign off on new spending, which is no slam dunk given the nearly even split in the Senate. The hearing starts at 10 a.m. in Dirksen 366.

**Ahead of the meeting:** FERC Commissioners Neil Chatterjee and Richard Glick penned an op-ed in Axios on cybersecurity oversight on the pipeline system, calling on Congress to take action. "Given the high stakes, Congress should vest responsibility for pipeline security with an agency that fully comprehends the energy sector and has sufficient resources to address this growing threat," they write, suggesting DOE would be a viable option. Read it here.

— **In response, DOE spokeswoman Shaylyn Hynes said** Chatterjee and Glick were right to highlight the threat. "They have both received briefings at the Department from intelligence officials on this matter," Hynes said, adding that DOE "remains committed to working with Congress, our interagency and industry partners as we seek to combat this threat and improve the security and resilience of our grid."

**NEW DOE STUDY TO LOOK AT 'UNCONSTRAINED' LNG EXPORTS:** The Energy Department is slated to post a new macroeconomic study of U.S. liquefied natural gas exports today that the agency says will factor into its decisions around approving exports to countries the U.S. does not have free trade agreements with. This will be the fifth LNG economics study since 2012 and, according to the Federal Register notice, it differs from the previous reports in looking at the impact of "unconstrained" exports. The most recent study, in 2015, considered export volumes of up to 28 Bcf per day. The study will be posted here and the agency is collecting comments through July 27.

**EPA FLOATS 36 NAMES FOR CASAC SPOTS:** EPA on Monday released a list of 36 experts nominated for the Clean Air Scientific Advisory Committee, which advises Pruitt on NAAQS issues. Pruitt last year appointed three new people to the seven-member panel; the other four slots are open for new three-year appointments at the beginning of October. Three of those four scientists have been re-nominated (Judith Chow, Ivan Fernandez and Elizabeth Sheppard), although Pruitt has shown little interest in re-upping Obama-era advisers on CASAC or other committees. The list is open for public comment through July 2.

**Along with a large slate of academics** and government scientists, the list includes Thomas

AMERICAN OVERSIGHT

Burke, a Johns Hopkins professor and top R&D official at EPA during the Obama administration; Nan Hayworth, a former ophthalmologist-turned-congresswoman who was a media surrogate for Pruitt during his confirmation process last year; Sabine Lange, who works at the Texas Commission on Environmental Quality's toxicology division under Science Advisory Board Chair Michael Honeycutt; and Deane Waldman, who runs the Texas Public Policy Foundation's Center for Health Care Policy.

**Also nominated is James Enstrom**, an epidemiologist who received funding from the tobacco industry and who has been openly critical of EPA's particulate matter standards. Enstrom is connected to Pruitt's proposed science transparency policy as well. In 2013, when Rep. Lamar Smith was pushing for his legislative version of the policy, he identified Enstrom specifically as a scientist whose request to examine the raw data underlying American Cancer Society studies was rejected.

**KOCH INDUSTRIES INVESTS IN FIRSTENERGY:** Koch Industries purchased more than 20,000 shares of FirstEnergy Corp., according to its most recent 13F filing with the SEC. The filing shows the group acquired 20,052 shares of FirstEnergy's stock at approximately $682,000. The same filing lists purchases in more than 20 other energy groups. (h/t Bloomberg's Ari Natter)

**SOLAR GROWS IN FIRST QUARTER:** Despite recent tariffs on imported solar modules, the U.S. added 2.5 gigawatts of solar photovoltaics in the first quarter of 2018, according to the latest "U.S. Solar Market Insight" report from GTM Research and the Solar Energy Industries Association. The report also found that solar PV accounted for 55 percent of all U.S. electricity capacity added during the quarter, and overall, solar installations in 2018 are expected to be in line with 2017's 10.6 GW "before growing more robustly in 2019 and then accelerating in the early 2020s," the report predicts. "This data shows that solar has become a common-sense option for much of the U.S. and is too strong to be set back for long, even in light of the tariffs," said SEIA President and CEO Abigail Ross Hopper in a statement. Read the report here.

**ANOTHER PRIMARY TUESDAY:** Five states will hold primary elections today: Maine, Nevada, North Dakota, South Carolina and Virginia. And while ME isn't expecting any major surprises, there are quite a few energy angles playing out.

— **In North Dakota,** Democratic Sen. Heidi Heitkamp is running unopposed, while GOP Rep. Kevin Cramer is widely expected to win his race today to take her on come November. State Sen. Kelly Armstrong is the favorite in both the Republican primary and the general election to fill Cramer's seat, Roll Call reports. Armstrong is currently vice president of his family's energy business, the Armstrong Corporation.

— **In Nevada,** Republican incumbent Sen. Dean Heller is expected to advance to face Democratic Rep. Jacky Rosen in November. It's less clear who will get the chance to take Rosen's seat. Twenty-one candidates are vying to replace her in the 3rd Congressional District, the Las Vegas Review-Journal reports. Both Heller and Rosen have opposed efforts to restart the licensing process at the Yucca Mountain nuclear waste repository.

— **In Maine,** greens are looking to replace Republican. Gov. Paul LePage, who is term limited, with a more pro-environmental candidate in the state that is home to significant offshore wind resources. POLITICO has more of what to watch in today's primaries here.

AMERICAN OVERSIGHT

**** A message from the National Rural Electric Cooperative Association:** America's electric cooperatives directly employ 71,000 workers and create thousands of other jobs in their communities. For example, every 20 electric cooperative jobs in Arkansas generate an additional 35 indirect or induced jobs in the state. Learn more: https://bit.ly/2kLKp7Z ******

**SEND IT TO THE SENATE:** Thirteen Republican senators called on Trump to send the Kigali amendment to the Montreal Protocol — a treaty limiting global use of hydrofluorocarbons, a climate change-causing coolant — to the Senate for ratification. "By sending the amendment to the Senate, you will help secure America's place as the global leader in several manufacturing industries, and in turn give American workers an advantage against their competitors in the international marketplace," the senators write in a letter sent Monday. Backers of the treaty, Pro's Eric Wolff reports , worry the president's antipathy to multilateral deals and climate agreements could jeopardize the deal that was struck at the end of the Obama administration. Read the letter.

**INTERIOR-ENVIRONMENT MARKUP TODAY:** The Senate Appropriations Interior-Environment Subcommittee will mark up its appropriations bill for fiscal 2019. The full committee is expected to take up the measure Thursday. **If you go:** The markup begins at 9:30 a.m. in 124 Dirksen.

**MAIL CALL! DEMS WANT HARASSMENT HEARING:** Democrats on the House Natural Resources Committee called on Chairman Rob Bishop to hold a hearing on sexual harassment and other types of workplace harassment at DOI, in a letter Monday. The letter highlights Interior Secretary Ryan Zinke's frequent calls for a "zero tolerance policy" toward harassment within the department, which they say the secretary has taken commendable action on, but that more needs to be done. The hearing request follows the January report by committee Democratic staff that identified needed policy reforms at the agency.

— **Separately, Democratic members of the House Science Oversight Subcommittee** sent a letter last week to Oversight Chairman Ralph Abraham asking for a hearing on a reported internal White House memo that weighed whether officials should simply "ignore" climate studies produced by government scientists. "Ignoring science and pushing political agendas that may be welcomed by industry, but harmful to the health, safety and security of all Americans should never be acceptable to the Science Committee or its members regardless of their political party," the Democrats wrote.

**DOOLEY DELAYS RETIREMENT:** Cal Dooley has delayed his retirement from the American Chemistry Council where he is president and CEO, the ACC announced Monday. Dooley will instead extend his tenure through 2019, following last week's annual ACC meeting, where the group's board of directors agreed their industry should take on a more global role to reduce and eliminate plastic waste. After a decade at the helm of ACC, Dooley in April had announced he would retire at the end of this year. The ACC's effort to find Dooley's replacement has been suspended for the time being, but will resume in mid-2019.

**REPORT: BLM RESHUFFLE CONTINUES:** BLM has replaced acting Deputy Director of Operations Mike Nedd with Richard Cardinale, a senior DOI official who has never worked at BLM, E&E News reports. Cardinale was director of the business operations division in Interior's Office of the Chief Information Officer. Sources tell E&E he's since moved into BLM's deputy director of operations position on an acting basis. Read the story.

AMERICAN OVERSIGHT

**CHALLENGE ACCEPTED?** Ahead of September's Global Climate Action Summit, the World Wildlife Fund has banded together a coalition to issue its "30X30 Forests, Food and Land Challenge," which calls on business and local and state governments to take action on forest and habitat conservation, as well as food production and consumption and land use.

**MOVER, SHAKER:** Texas Gov. Greg Abbott has appointed Shelly Botkin to the Public Utility Commission of Texas, the PUC said Monday. Botkin is currently director of corporate communications and government relations for the Electric Reliability Council of Texas. Botkin's PUC term would expire on Sept. 1, 2019.

**QUICK HITS**

— Cyber experts: Trump's coal, nuclear bailout no shield from hackers, Reuters.

— Activist investor Paul Singer just chose Sempra Energy as his next turnaround project, CNBC.

— Feds weigh proposals to ship wild horses overseas, Huffington Post.

— How Pruitt could be criminally prosecuted for EPA scandals, Washington Examiner.

**HAPPENING TODAY**

7:45 a.m. — POLITICO Playbook Breakfast interview with House Majority Whip Steve Scalise on Republican priorities and the leadership agenda, 901 Fourth Street NW

8:30 a.m. — The Fuel Cell and Hydrogen Energy Association's 2018 National Fuel Cell and Hydrogen Forum, 1300 Pennsylvania Avenue NW

8:30 a.m. — The American Water Works Association holds annual conference and exposition, Las Vegas

8:45 a.m. — Platts' Bunker and Residual Fuel conference, Houston

9:30 a.m. — Senate Appropriations Interior-Environment Subcommittee markup of the FY 2019 Interior-Environment appropriations bill, 124 Dirksen

9:30 a.m. — The Woodrow Wilson Center's Environmental Change and Security Program, the PACE Project and the Maternal Health Initiative discussion on "A More Resilient World: The Role of Population and Family Planning in Sustainable Development," 1300 Pennsylvania Avenue NW

10:00 a.m. — Senate Energy and Natural Resources Committee hearing on FERC, 366 Dirksen

12:00 p.m. — The High Performance Building Coalition briefing on building the industry of the future, 2322 Rayburn

12:00 p.m. — The D.C. Bar sponsors forum on "Criminal Environmental Enforcement Under the Trump Administration," 950 F Street NW

12:30 p.m. — The Henry L. Stimson Center and the Institute of Nuclear Materials

AMERICAN OVERSIGHT

Management seminar on the disposal of nuclear waste, 1211 Connecticut Avenue NW

1:00 p.m. — United States Energy Association discussion on carbon capture use and policy, 1300 Pennsylvania Avenue NW

**THAT'S ALL FOR ME!**

**** A message from the National Rural Electric Cooperative Association:** America's electric cooperatives provide 71,000 direct jobs and invest $12 billion annually in local economies. Electric co-ops work directly with business and community leaders to create thousands of new jobs and couple investment from other sources to support hospitals, libraries and public safety. Learn more: https://bit.ly/2kLKp7Z ******

*To view online*:
https://subscriber.politicopro.com/newsletters/morning-energy/2018/06/pruitt-heads-out-on-ethanol-visit-248828

**Stories from POLITICO Pro**

**Biofuel deal stalemate keeps pressure off refiners** Back

By Eric Wolff | 06/08/2018 02:33 PM EDT

Ethanol backers praised President Donald Trump this week for blocking changes to the biofuel program that they feared would be a setback for the corn-based fuel, but experts say it's oil refiners who are getting all the benefits from the stalemate.

Iowa Republican Sens. Chuck Grassley and Joni Ernst both thanked Trump on Tuesday for refusing to sign off on a deal to alter the Renewable Fuel Standard to expand sales of E15 fuel but allow exports of ethanol to qualify for compliance credits, a change that would have sharply increased the number of those Renewable Identification Numbers in the market.

Though refineries have portrayed that increase in RINs as a necessary approach to bring down their cost of compliance, the dozens of economic hardship waivers that EPA Administrator Scott Pruitt has granted to small oil processors has already pushed the cost of those credits to their lowest levels in five years. And the failure to reach an agreement on changes to the RFS mean those EPA waivers will stay in place for now.

"No deal allows the EPA to continue to implement actions as they see fit, and those have been benefiting refiners," said Andy Lipow, an oil industry analyst with Lipow Oil Associates. "[Pruitt's] actions are geared toward helping manufacturing, and the oil industry is just one of the many he's been helping through the deregulation process."

Ethanol producers say EPA has de facto lowered the legal ethanol blending mandate for U.S. refiners by at least 1.5 billion gallons by issuing the waivers. That, as well as the chatter about allowing RINs on exports, drove RIN prices down to 18 cents per gallon on Monday, a dramatic fall from prices near $1 last August, according to energy price data service OPIS. Those prices has ticked up slightly to 21 cent per gallon by Thursday.

And RIN prices aren't expected to rise much, even though any deal is on hold for now.

AMERICAN OVERSIGHT

"The only reason RIN prices are as high as they are today is uncertainty of small refinery policy," said Neelesh Nerurkar, an analyst with ClearView Energy Partners. "Just because a reform deal is on ice, doesn't mean RIN prices should shoot up."

Both Grassley and Ernst have been critical of Pruitt — who Ernst derided as "about as swampy as you get" this week — and ethanol groups expect that he will continue to be sympathetic to the complaints of the refiners. Pruitt was seen at dinner this week with Sen. Ted Cruz (R-Texas), who has championed the refiners' arguments in the White House talks.

"It's clear that the refiners have the ear of Administrator Pruitt," said Brooke Coleman, executive director of the Advanced Biofuels Business Council. "We feel like Administrator Pruitt is going to stay at it."

While the corn growers and ethanol backers have been pleased Trump has stuck to his promise to support the biofuel, some refiners say the agricultural groups may be missing an opportunity to stake out a real compromise solution that allows them to sell more fuel, especially since Pruitt's EPA could find new ways to help the oil industry.

"There's going to be some changes in this program," said a refining industry source. "If anything, changes [ethanol producers] want to the RFS program will come with a price attached to it that is stability for RINs. They had a golden opportunity to get what they want the most. There are other options that almost certainly will proceed if this option is off the table."

EPA declined to comment on whether the agency would seek future changes to the RFS, but Pruitt has aggressively explored ways to change the program. Last fall he proposed cutting biodiesel requirements in half. When that effort failed, he put the word out that the agency would be taking a broader interpretation the rules allowing small refiners facing economic hardship to be exempted from requirements, according to an oil industry source.

EPA has reportedly granted waiver exemptions to the RFS to over two dozen refiners, along with retroactive exemptions to two refiners dating back to 2014. In at least once case, EPA granted an exemption to a refinery even though it exceeded the 75,000 barrel-per-day capacity definition of "small refinery" because the plant operated at lower volumes. Pruitt also granted a waiver to refiner Philadelphia Energy Solutions as part of the refinery's bankruptcy proceedings.

Those waivers have helped bring the RIN prices down, a core goal for the refiners, but one that ethanol producers complain removes an incentive for oil industry players to develop new infrastructure to increasing fuel blending.

Advanced Biofuel's Coleman suggested that Pruitt was pushing the limits of the program without concern that the changes could be cut down in court — even as questions about Pruitt's future swirl because of the growing number of scandals around him.

"At the end of the day the political cost of all of this stuff ultimately falls on an administration that is unlikely to include him. One has to wonder if his systematic dismantling of the RFS is something that comes to his benefit and to no one else and that's fine with him," Coleman said.

Members of Congress working on a legislative overhaul of the RFS would prefer to see to see EPA and the administration stop mucking around with the program. Sen. John Cornyn (R-

AMERICAN OVERSIGHT

Texas) and Rep. John Shimkus (R-Ill.) have been working on a bill to make broader changes. Supporters of a legislative fix worried that big administrative changes would suck the life out of an overhaul bill.

"The inability to reach a deal on administrative changes to the RFS perfectly illustrates the need for an enduring, legislative solution," said Jordan Haverly, a Shimkus spokesman. "That goal is no less difficult to reach, but it's the only way we'll get to an agreement that works for growers, producers, refiners, automakers, marketers, and most importantly, consumers."

*To view online click here.*

Back

**EPA's Pruitt to visit Kansas ethanol plant Tuesday** Back

By Eric Wolff | 06/11/2018 06:29 PM EDT

EPA Administrator Scott Pruitt is expected to visit an ethanol plant in Kansas Tuesday morning, according to the head of the company that owns the plant.

"Mr. Pruitt is planning on being here tomorrow," Bill Pracht, CEO of East Kansas Agri-Energy, told POLITICO.

"I was kind of surprised," he said, adding that he did not organize the visit. "He was coming to Kansas, doing one other event on a different issue, and the plant is on the way to the airport."

Pruitt is also expected to visit another ethanol plant in South Dakota, according to a consultant with a communications firm that has been helping to organize the trip.

The ethanol plant visits comes as Pruitt draws criticism from ethanol groups and Iowa's Sens. Chuck Grassley and Joni Ernst for allowing dozens of refineries to get out of their requirements under the Renewable Fuel Standard to blend ethanol with gasoline.

Pracht said he plans to give Pruitt a tour of the plant and have the administrator meet with his board and some local agricultural groups.

EPA did not respond to requests for comment on Pruitt's travel plans.

*Kelsey Tamborrino contributed to this alert.*

*To view online click here.*

Back

**Pruitt 'is about as swampy as you get,' Republican senator says** Back

By Eric Wolff | 06/05/2018 12:27 PM EDT

AMERICAN OVERSIGHT

Iowa Republican Sen. Joni Ernst says President Donald Trump would be justified in firing EPA Administrator Scott Pruitt, who she accused of lying about his policy views and misusing his office.

Pruitt "is about as swampy as you get here in Washington, D.C. And if the president wants to drain the swamp, he needs to take a look at his own Cabinet," Ernst said Tuesday at an energy policy forum in Washington. She stressed that she was speaking for herself and that it is up to Trump to decide whether to keep Pruitt on board.

Ernst, a strong supporter of the ethanol industry, said Pruitt lied to her and other senators last year when he promised to uphold the Renewable Fuel Standard, and hammered him for more recent ethical lapses over "the way he spends money, the way he misuses his office." She accused Pruitt of breaking Trump's promise to farmers at a time when commodity prices are down and a confrontational approach to trade is hurting exports.

The White House is expected to soon announce a deal that would expand sales of 15 percent ethanol fuel, which corn-state lawmakers have sought for years, but allow ethanol exports to count for compliance with the RFS, something ethanol supporters say would undermine the program. Ernst said she lifted her hold on Bill Wehrum's confirmation as EPA's air chief last year only after Pruitt promised to abandon export compliance, and she accused Pruitt of breaking his word.

"Administrator Pruitt put in writing he intended to uphold the congressional intent of the RFS and he has not done that," she said. "He also put into writing that the scheme to attach [Renewable Identification Numbers] for exported ethanol would stop and that's a lie, because now that's exactly what he proposed."

Iowa's senior Republican Sen. Chuck Grassley has said in the past that he would call on Pruitt to resign if he didn't like the look of the White House changes to the program. Ernst did not call for Pruitt to step down in her remarks at a Platts Energy Podium discussion Tuesday.

Grassley said in separate remarks that he was concerned at the level of influence the oil industry seems to have had over the emerging RFS deal.

"I would have to wait until this is finalized to make it clear but I think that the chances for Congress overcoming what EPA could do to damage the ethanol industry would be very difficult when you stop to think of this being very much driven by Big Oil," Grassley said in a call with reporters Tuesday. "Seems like this iron triangle is working its will through the Washington swamp. You know how Big Oil has had Washington wired for a long time and I think EPA is part of this Washington swamp delivering this blow to ethanol if it occurs."

Ernst said she would not place any blanket hold over Trump nominees to protest the biofuels deal, but she said she may vote in committee against individuals tapped for EPA posts if they refuse to support the program. She also said she doesn't expect RFS-related provisions to appear in the farm bill. Both she and Grassley appeared ready to accept whatever Trump orders.

"When it comes to accepting it, I don't think there's much of a choice anymore," Ernst said. "Whatever agreement comes out between administrator and secretary of Ag, I don't know what we can do at this point."

AMERICAN OVERSIGHT

*Liz Crampton contributed to this report.*

*To view online click here.*

Back

**Biofuel deal stalemate keeps pressure off refiners** Back

By Eric Wolff | 06/08/2018 02:33 PM EDT

Ethanol backers praised President Donald Trump this week for blocking changes to the biofuel program that they feared would be a setback for the corn-based fuel, but experts say it's oil refiners who are getting all the benefits from the stalemate.

Iowa Republican Sens. Chuck Grassley and Joni Ernst both thanked Trump on Tuesday for refusing to sign off on a deal to alter the Renewable Fuel Standard to expand sales of E15 fuel but allow exports of ethanol to qualify for compliance credits, a change that would have sharply increased the number of those Renewable Identification Numbers in the market.

Though refineries have portrayed that increase in RINs as a necessary approach to bring down their cost of compliance, the dozens of economic hardship waivers that EPA Administrator Scott Pruitt has granted to small oil processors has already pushed the cost of those credits to their lowest levels in five years. And the failure to reach an agreement on changes to the RFS mean those EPA waivers will stay in place for now.

"No deal allows the EPA to continue to implement actions as they see fit, and those have been benefiting refiners," said Andy Lipow, an oil industry analyst with Lipow Oil Associates. "[Pruitt's] actions are geared toward helping manufacturing, and the oil industry is just one of the many he's been helping through the deregulation process."

Ethanol producers say EPA has de facto lowered the legal ethanol blending mandate for U.S. refiners by at least 1.5 billion gallons by issuing the waivers. That, as well as the chatter about allowing RINs on exports, drove RIN prices down to 18 cents per gallon on Monday, a dramatic fall from prices near $1 last August, according to energy price data service OPIS. Those prices has ticked up slightly to 21 cent per gallon by Thursday.

And RIN prices aren't expected to rise much, even though any deal is on hold for now.

"The only reason RIN prices are as high as they are today is uncertainty of small refinery policy," said Neelesh Nerurkar, an analyst with ClearView Energy Partners. "Just because a reform deal is on ice, doesn't mean RIN prices should shoot up."

Both Grassley and Ernst have been critical of Pruitt — who Ernst derided as "about as swampy as you get" this week — and ethanol groups expect that he will continue to be sympathetic to the complaints of the refiners. Pruitt was seen at dinner this week with Sen. Ted Cruz (R-Texas), who has championed the refiners' arguments in the White House talks.

"It's clear that the refiners have the ear of Administrator Pruitt," said Brooke Coleman, executive director of the Advanced Biofuels Business Council. "We feel like Administrator

AMERICAN OVERSIGHT

Pruitt is going to stay at it."

While the corn growers and ethanol backers have been pleased Trump has stuck to his promise to support the biofuel, some refiners say the agricultural groups may be missing an opportunity to stake out a real compromise solution that allows them to sell more fuel, especially since Pruitt's EPA could find new ways to help the oil industry.

"There's going to be some changes in this program," said a refining industry source. "If anything, changes [ethanol producers] want to the RFS program will come with a price attached to it that is stability for RINs. They had a golden opportunity to get what they want the most. There are other options that almost certainly will proceed if this option is off the table."

EPA declined to comment on whether the agency would seek future changes to the RFS, but Pruitt has aggressively explored ways to change the program. Last fall he proposed cutting biodiesel requirements in half. When that effort failed, he put the word out that the agency would be taking a broader interpretation the rules allowing small refiners facing economic hardship to be exempted from requirements, according to an oil industry source.

EPA has reportedly granted waiver exemptions to the RFS to over two dozen refiners, along with retroactive exemptions to two refiners dating back to 2014. In at least once case, EPA granted an exemption to a refinery even though it exceeded the 75,000 barrel-per-day capacity definition of "small refinery" because the plant operated at lower volumes. Pruitt also granted a waiver to refiner Philadelphia Energy Solutions as part of the refinery's bankruptcy proceedings.

Those waivers have helped bring the RIN prices down, a core goal for the refiners, but one that ethanol producers complain removes an incentive for oil industry players to develop new infrastructure to increasing fuel blending.

Advanced Biofuel's Coleman suggested that Pruitt was pushing the limits of the program without concern that the changes could be cut down in court — even as questions about Pruitt's future swirl because of the growing number of scandals around him.

"At the end of the day the political cost of all of this stuff ultimately falls on an administration that is unlikely to include him. One has to wonder if his systematic dismantling of the RFS is something that comes to his benefit and to no one else and that's fine with him," Coleman said.

Members of Congress working on a legislative overhaul of the RFS would prefer to see to see EPA and the administration stop mucking around with the program. Sen. John Cornyn (R-Texas) and Rep. John Shimkus (R-Ill.) have been working on a bill to make broader changes. Supporters of a legislative fix worried that big administrative changes would suck the life out of an overhaul bill.

"The inability to reach a deal on administrative changes to the RFS perfectly illustrates the need for an enduring, legislative solution," said Jordan Haverly, a Shimkus spokesman. "That goal is no less difficult to reach, but it's the only way we'll get to an agreement that works for growers, producers, refiners, automakers, marketers, and most importantly, consumers."

*To view online click here.*

AMERICAN OVERSIGHT

Back

**Trump's clout in GOP is driving Tuesday's primaries. Here's what to watch.** Back

By Steven Shepard and Elena Schneider | 06/12/2018 03:51 AM EDT

The full scope of President Donald Trump's influence on the Republican Party will be on display in Tuesday's primaries, as one of his original 2016 supporters and one of his biggest Republican detractors in Congress fight for their political lives.

Rep. Mark Sanford's (R-S.C.) frequent criticism of Trump's policies and rhetoric has landed him in an unexpectedly competitive House primary against a state representative touting herself as a staunch Trump partisan. But at the top of the ticket in South Carolina, Trump's support is one of the biggest things going for South Carolina Gov. Henry McMaster, who was the first statewide elected official to back Trump in 2016 but faces questions over his ties to corruption in state government.

Both primaries, and others in South Carolina, could go to overtime if no candidate gets 50 percent of the vote, forcing runoffs between the top two contenders in two weeks. And there is another voting twist on tap in Maine, which will use ranked-choice voting to pick nominees for governor and Congress in what could be the first and only deployment of the practice.

That's because there's also a provision on the primary ballot to repeal ranked-choice voting — a good-government innovation designed to more accurately reflect the will of the people that, at the same time, voters may find perplexing.

Also on the ballot: A crowded Democratic primary for a heavily contested House seat in Northern Virginia, packed primaries for two competitive congressional districts in Nevada and a race for governor of Nevada that has drawn national attention and big money.

Polls close at 7 p.m. Eastern in South Carolina and Virginia; 8 p.m. in Maine; 9 p.m. and 10 p.m. in North Dakota (which is split between two time zones); and 10 p.m. in Nevada.

Here's what POLITICO will be watching in Tuesday's primaries:

**Presidential primary power**

Once again, Trump is playing a starring role in two South Carolina Republican primaries, both tests of the power of presidential support among Republican voters.

Sanford, a loud critic of Trump, is in the race of his life against state Rep. Katie Arrington, who has used Sanford's comments against him and called him an opponent of the Trump agenda in her TV ads. One measure of Sanford's concern: The race has prompted a last-minute advertising barrage from him, despite his reputation as a notorious penny-pincher on the campaign trail.

The anti-Trump argument carried weight last week in Alabama, where Rep. Martha Roby — who renounced her support for Trump in 2016 after the "Access Hollywood" video came out — finished with just 39 percent of the vote in a five-way primary and faces a runoff next month.

AMERICAN OVERSIGHT

Meanwhile, McMaster — who became governor in 2017 after Nikki Haley joined the Trump administration — is touting his Trump endorsement as his best qualification for the GOP nomination for a full term, as he holds off four primary challengers. He has lead public polling, and is expected to face Democratic state Rep. James Smith in November — if he can hold off challengers including Catherine Templeton, who have slammed McMaster's ties to corrupt officials including a former political consultant who is under indictment. But both McMaster and Smith hope to avoid a runoff.

**A primary test for state legislators seeking a promotion**

State legislatures have long been a proving ground for future members of Congress. But fewer and fewer candidates are jumping from state to federal government, and Democrats in the age of Trump have been intensely focused on recruiting and promoting first-time candidates hailing from business, the military and the federal government. A pair of state legislators in Virginia and Maine, however, put that trend to the test in contested House battleground primaries.

In Virginia, state Sen. Jennifer Wexton entered as the Democratic front-runner to take on GOP Rep. Barbara Comstock. But Wexton is running against several well-funded challengers who are seeking office for the first time, and all of them have bluntly cast themselves as fresh faces in contrast to Wexton — "not a politician," said Dan Helmer, a veteran and first-time candidate, in one of his TV ads.

But Wexton, having represented a swing portion of the district for the past four years, said she believes that being the "only person in this race who serves in elected office or run and won two races in the district" is appealing to voters.

In Maine, Democrats recruited state Rep. Jared Golden, a 35-year-old combat veteran, to take on GOP Rep. Bruce Poliquin. But Golden must first dispatch conservationist and first-timer Lucas St. Clair, whose mother co-founded Burt's Bees, a personal care products company.

**Maine's Democratic experiment**

Democratic voters in Maine picking their nominee for governor on Tuesday have up to eight choices to make instead of the usual one.

Under the state's new "ranked-choice" voting system, the ballot will function as an instant runoff. Voters can rank the candidates 1 through 8, just choose the one they want, or anywhere in between. (There are four Republican candidates, too; Gov. Paul LePage is term limited.)

Democrats will also nominate a candidate to face GOP Rep. Bruce Poliquin in the state's 2nd Congressional District using the system, choosing from four options on the ballot. Poliquin's seat is a battleground district; the two-term incumbent was reelected with 55 percent of the vote in 2016.

Good-government groups tout instant runoff voting as more reflective of public opinion — especially after LePage won twice with a plurality of the vote because independent candidate Eliot Cutler split liberal-leaning votes with the Democratic nominee. (Cutler actually finished second in 2010, but he was a distant third in 2014.)

But critics argue ranked-choice voting is confusing and sometimes leads to less-desirable

AMERICAN OVERSIGHT

outcomes. In San Francisco, which just held a mayoral election, the San Francisco Chronicle called the instant-runoff system an "oxymoron" that confuses many voters and could mean the next mayor was the first choice of only a quarter of voters.

The entire system may be end up being a short-lived experiment in Maine, however. An initiative on the ballot proposed to delay implementing the system until 2022 — and then using it only if the state constitution is amended before 2021. Voters confused by when they pick their candidates may choose to chuck the system at the same time.

**Fight night for Nevada Democrats**

While Nevada has shifted from solid red state to blue-leaning battleground in recent years, Democrats haven't managed to win the governorship in two decades. They sense opportunity to do it in 2018 — and that has led to this week's most contentious statewide primary, with the winner likely to face GOP front-runner and state Attorney General Adam Laxalt in the fall.

Steve Sisolak and Christina Giunchigliani, both Clark County commissioners, are the two leading candidates in a Democratic race that turned ugly quickly. Sisolak, who has built a more moderate record, calls Giunchigliani (known colloquially as "Chris G.") "what's wrong with politics." Giunchigliani, who notched a late endorsement from Hillary Clinton, attacked her opponent as too far right for a Democratic primary on education and especially guns.

"Steve is less doctrinaire than Chris is," said Nevada Democratic strategist Dan Hart. Sisolak's allies argue that makes him an ideal general election candidate for a state that swings back and forth between the parties, but Giunchigliani's supporters argue she can energize the party in the general election.

There's no recent public polling in the race, but the primary will provide more clues about the direction of Democratic Party in 2018, both along ideological and gender fault lines.

**A 'change' political era meets old candidates in Nevada swing seats**

Two open battleground districts are up for grabs in Nevada, and all sides expect these races to attract tons of spending this fall. But none of the likely candidates here are new to the game.

Trump publicly nudged Danny Tarkanian — a Republican candidate threatening Sen. Dean Heller (R-Nev.) with a primary challenge — into running instead for Nevada's 3rd Congressional District, the same seat Tarkanian lost to Rep. Jacky Rosen (D-Nev.) in 2016. Now, Rosen is running for the Senate, and Tarkanian's "100 percent name recognition makes it awful hard to lose a [primary] race," said one Republican consultant in the state. Democrats, meanwhile, expect Susie Lee, a philanthropist who lost a primary bid in a neighboring district in 2016, to win the nomination.

Meanwhile, a pair of former House members are seeking a 2014 rematch to the north. Former Rep. Cresent Hardy (R-Nev.) beat former Rep. Steven Horsford (D-Nev.) in the 4th District in 2014, but Hardy was defeated in 2016 by Rep. Ruben Kihuen.

Kihuen's congressional tenure was a short one, though: The freshman Democrat announced he would not seek reelection after multiple allegations of sexual harassment.

Horsford and Hardy, both seeking their respective party nominations on Tuesday, are expected to head into November together again.

AMERICAN OVERSIGHT

*To view online click here.*

Back

**Republican senators ask Trump to send Kigali treaty to Senate** Back

By Eric Wolff | 06/11/2018 04:34 PM EDT

A group of 13 Republican senators are calling on President Donald Trump to send a treaty limiting global use of a climate change-causing coolant to the Senate for ratification.

The Kigali amendment to the Montreal Protocol would phase down use of hydrofluorocarbons, a global-warming inducing chemical used in cooling systems.

But unlike the Paris climate agreement, the Kigali measure is strongly supported by U.S. companies, since the coolant makers could become the world's biggest supplier of the next generation coolants. If the U.S. fails to approve the amendment, the companies would face steep trade barriers.

"By sending the amendment to the Senate, you will help secure America's place as the global leader in several manufacturing industries, and in turn give American workers an advantage against their competitors in the international marketplace," the senators write in a letter sent today.

Treaty backers worry Trump's antipathy to multilateral deals and climate agreements could jeopardize the deal that was struck at the end of the Obama administration.

The letter was signed by Republican Sens. John Kennedy (La.), Susan Collins (Maine), Bill Cassidy (La.), Lindsey Graham (S.C.), Lisa Murkowski (Alaska), Johnny Isakson (Ga.), Marco Rubio (Fla.), Lamar Alexander (Tenn.), Jerry Moran (Kansas), Tim Scott (S.C.), Roy Blunt (Mo.), John Boozman (Ark.), and Todd Young (Ind.).

*To view online click here.*

Back

Was this Pro content helpful? Tell us what you think in one click.

Yes, very | Somewhat | Neutral | Not really | Not at all

**You received this POLITICO Pro content because your customized settings include: Morning Energy. To change your alert settings, please go to https://subscriber.politicopro.com/settings**

AMERICAN OVERSIGHT

EXT-18-2615-C-000027

**This email was sent to shaylyn.hynes@hq.doe.gov by: POLITICO, LLC 1000 Wilson Blvd. Arlington, VA, 22209, USA**

AMERICAN OVERSIGHT

**From:** Rodriguez, Fernando
**To:** (b) (6) ; Travis Fisher
**Subject:** FW: President Donald J. Trump Announces Intent to Nominate Personnel to Key Administration Posts
**Date:** Thursday, June 14, 2018 5:24:17 PM

fyi

**From:** White House Press Office [mailto:whitehouse-noreply@messages.whitehouse.gov]
**Sent:** Thursday, June 14, 2018 4:45 PM
**To:**
**Subject:** President Donald J. Trump Announces Intent to Nominate Personnel to Key Administration Posts

THE WHITE HOUSE
Office of the Press Secretary

FOR IMMEDIATE RELEASE
June 14, 2018

**President Donald J. Trump Announces Intent to Nominate Personnel to Key Administration Posts**

President Donald J. Trump today announced his intent to nominate the following individuals to key positions in his Administration:

**Shannon Lee Goessling of Florida, to be the Director of the Office of Violence Against Women at the Department of Justice.**

Ms. Goessling, in her twenty-five year successful legal and business career, has been a prosecutor, businesswoman, non-profit executive, and chief legal counsel. She served as a State prosecutor for almost a decade, rising to head the Crimes Against Women and Children Unit in Georgia's largest county. As a sole practitioner for thirteen years, she advocated for victims of domestic violence and other crimes, and represented small businesses. She served as the Executive Director and Chief Legal Counsel of a national public interest law firm and policy center, advancing the rule of law. Additionally, Ms. Goessling founded two small businesses, spanning eighteen years. Ms. Goessling served as faculty for the National District Attorneys Association and was a member of the Georgia Advisory Committee to the United States Civil Rights Commission. Ms. Goessling earned her B.A., *cum laude* from Rollins College, where she was inducted into Omicron Delta Kappa, and her J.D. from Emory University School of Law.

**Daniel Simmons of Virginia, to be an Assistant Secretary for Energy, Efficiency, and Renewable Energy at the Department of Energy.**

Mr. Simmons has served as the Principal Deputy Assistant Secretary in the Office of Energy Efficiency and Renewable Energy (EERE) at the U.S. Department of Energy. He oversaw technology development in the energy efficiency, renewable power, and sustainable transportation sectors, leading EERE to achieve its vision of a strong and prosperous America powered by clean, affordable, and secure energy. Prior to government service, Mr. Simmons served as the Institute for Energy Research's Vice President for Policy promoting affordable energy for all Americans. He previously served as director of the Natural Resources Task Force at the American Legislative Exchange Council, was a research fellow at the Mercatus Center, and worked as professional staff on the Committee on Resources of the United States House of Representatives. Mr. Simmons is a graduate of Utah State University and George Mason University School of Law.

**Irving Bailey of Florida, to be a Member of the Board of Directors of the Overseas Private Investment Corporation for a remainder of a three-year term expiring December 17, 2018 and an additional three-year term expiring December 17, 2021.**

###

---

AMERICAN OVERSIGHT

Unsubscribe

The White House · 1600 Pennsylvania Avenue, NW · Washington DC 20500 · 202-456-1111

AMERICAN OVERSIGHT

**From:** Travis Fisher
**To:** (b) (6) ; Martin Kirkwood
**Subject:** FW: Research: FERC"s Resilience Proceeding in the DPA Context
**Date:** Monday, June 18, 2018 5:53:00 PM
**Attachments:** (b) (5)

FYI, I received this when I was out of the office and just got around to seeing it now.

(b) (5)

**From:** ClearView Energy Partners, LLC [mailto:research@CVEnergy.com]
**Sent:** Friday, June 08, 2018 3:54 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** Research: FERC's Resilience Proceeding in the DPA Context

View this email in your browser

Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## FERC'S RESILIENCE PROCEEDING IN THE DPA CONTEXT

While the May 29 draft memorandum supporting Department of Energy (DOE) action to prevent coal and nuclear unit retirements has recently taken center stage in the grid resiliency debate, the Federal Energy Regulatory Commission's (FERC) *Grid Resilience in Regional Transmission Organizations and Independent System Operators* proceeding (Resilience docket, AD18-7) remains open. More than 130 entities filed

AMERICAN OVERSIGHT

comments in May responding to regional transmission organizations (RTO) filings in that proceeding. Our review of these comments suggests a continued lack of consensus among stakeholders as to the urgency and scope of action needed to address resilience challenges. In our view, the lack of consensus – coupled with the prospect of a time-limited DOE program designed to retain "fuel secure" generation while DOE studies the reliability and resiliency of the grid – likely still leaves the Commission with a significant role in the resilience discussion. Chairman Kevin McIntyre suggested this week that he hoped additional action from FERC could occur this summer.

---CLEARVIEW---

2018-06-08-FERC_Resilience_and_DOE_Action.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

# State of Reliability 2018

Embargoed until 11:00 a.m. Eastern June 21, 2018

June 2018

RELIABILITY | ACCOUNTABILITY






3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

AMERICAN OVERSIGHT
EXT-18-2615-C-000033

# Table of Contents


Preface ..... v

Executive Summary ..... vi

Chapter 1: Availability Data Systems Assessment ..... 1

- Overview ..... 1
- Highlights of TADS Analysis ..... 1
- Highlights of GADS Analysis ..... 4
- Highlights of DADS Analysis ..... 6

Chapter 2: Frequency Response ..... 7

Chapter 3: Reliability Indicator Trends ..... 13

- Summary ..... 13
- M-2 BPS Transmission-Related Events Resulting in Loss of Load ..... 15
- M-9 Correct Protection System Operations ..... 18
- M-12 through M-14 Automatic AC Transmission Outages ..... 25
- M-15 Automatic AC Transmission Outages Initiated by Failed AC Circuit Equipment ..... 30
- M-16 Element Availability Percentage and Unavailability Percentage ..... 32

Chapter 4: Enforcement Metrics for Risk and Reliability Impact ..... 34

Chapter 5: Event Analysis ..... 35

- Weather (Hurricanes—Wind and Water Events) ..... 35
- Inverter-Based Generation Update ..... 37
- Solar Eclipse ..... 38

Chapter 6: BES Security Measures ..... 39

- Cyber Security ..... 39
- Recent Cyber Security Developments ..... 39
- E-ISAC Cyber Security Findings ..... 40
- Physical Security ..... 43
- Metric Contextual Information: Recent Physical Security Developments ..... 44
- Information Sharing ..... 46
- Metric Contextual Information: Recent Trends in Information Sharing ..... 46
- CRISP Reporting ..... 46
- Global Vulnerabilities ..... 48
- Continued Security Metrics Maturation ..... 49
- Principles for Future Work ..... 49

Chapter 7: Actions to Address Recommendations in Prior State of Reliability Report ..... 50


AMERICAN OVERSIGHT



EXT-18-2615-C-000034

Appendix A: Statistical Analysis of Daily Transmission and Generation Performance ..... 56
Assessment of Daily Transmission Performance and Daily Generation Performance ..... 56
Appendix B: Statistical Analysis of Transmission Data ..... 69
Study Method ..... 69
Study 1: TADS Sustained and Momentary Events for 200 kV+ AC Circuits ..... 73
Study 2: TADS Sustained and Momentary CDM Events for 200 kV+ AC Circuits ..... 78
Study 3: Regional Entity Transmission Analysis of 200 kV+ Momentary and Sustained Events ..... 82
Study 4: TADS Sustained Events of 100 kV+ AC Circuits and Transformers ..... 84
Study 5: Sustained Cause Code and ICC-SCC Study for Sustained Outages of 100 kV+ AC Circuits ..... 90
Appendix C: Analysis of Generator Data ..... 95
Introduction ..... 95
Generator Fleet Reliability ..... 96
Forced Outage Causes ..... 97
Appendix D: Analysis of Demand Response Data ..... 102
Overview ..... 102
Demand Response Programs ..... 102
Demand Response: Reliability Events ..... 104
DADS Metrics ..... 106
Looking Ahead ..... 111
Appendix E: Frequency Response Statistics and Essential Reliability Services ..... 112
Metric M-4: Interconnection Frequency Response ..... 112
Frequency Response Arresting Period Performance ..... 116
Frequency Response Stabilizing Period Performance ..... 118
Summary of Correlation Analysis ..... 132
Essential Reliability Services ..... 149
Appendix F: Reliability Indicator Trends ..... 156
M-1 Planning Reserve Margin ..... 156
M-3 System Voltage Performance ..... 157
M-6 Disturbance Control Standard Failures ..... 158
M-7 Disturbance Control Events Greater than MSSC ..... 158
M-8: Interconnection Reliability Operating Limit Exceedances ..... 159
M-9 Correct Protection System Operations ..... 162
M-10 Transmission Constraint Mitigation ..... 168
M-11 Energy Emergency Alerts ..... 168
Appendix G: Event Analysis ..... 171

AMERICAN OVERSIGHT



EXT-18-2615-C-000035

Energy Management System Working Group ..... 171
Event Analysis Process ..... 172
Major Initiatives in Event Analysis ..... 179
Hurricane Harvey ..... 180
Hurricane Irma ..... 182
Summary ..... 184
Appendix H: Abbreviations Used in this Report ..... 185
Appendix I: Contributions ..... 188

AMERICAN OVERSIGHT

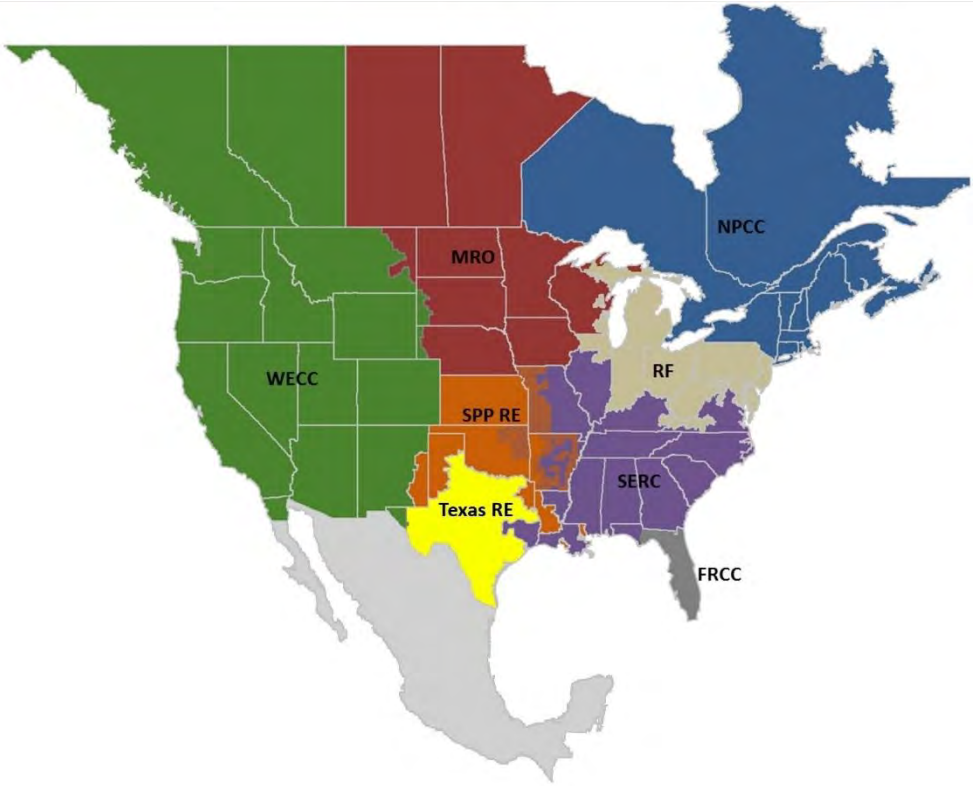


EXT-18-2615-C-000036

# Preface

The vision for the Electric Reliability Organization (ERO) Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the eight Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

The North American BPS is divided into eight RE boundaries as shown in the map and corresponding table below. The highlighted areas denote overlap as some load-serving entities participate in one Region while associated Transmission Owners/Operators participate in another.




| | |
|---|---|
| **FRCC** | Florida Reliability Coordinating Council |
| **MRO** | Midwest Reliability Organization |
| **NPCC** | Northeast Power Coordinating Council |
| **RF** | ReliabilityFirst |
| **SERC** | SERC Reliability Corporation |
| **SPP RE** | Southwest Power Pool Regional Entity |
| **Texas RE** | Texas Reliability Entity |
| **WECC** | Western Electricity Coordinating Council |

AMERICAN OVERSIGHT



EXT-18-2615-C-000037

# Executive Summary

NERC, as the ERO of North America, assures the effective and efficient reduction of reliability and security risks for the North American BPS. Annual and seasonal risk assessments that look to the future and special reports on emergent risks serve to identify and mitigate potential risks. Additionally, analyses of past BPS performance serve to document BPS adequacy and to identify positive or negative performance trends. NERC's annual *State of Reliability* report is one such analysis of past performance that informs regulators, policymakers, and executives at a high level while providing granular technical details (typically in appendices) for those interested in the underlying data and detailed analytics.

The *State of Reliability 2018* is NERC's independent assessment developed by its Performance Analysis staff with support from the Performance Analysis Subcommittee (PAS). The *State of Reliability 2018* focuses on BPS performance during 2017 as measured by a predetermined set of reliability indicators (metrics).[1] Based on the metrics, the BPS provided an adequate level of reliability (ALR)[2] during 2017. The only metric indicating cause for concern is Metric M-1: Planning Reserve Margin,[3] which is actually a forward-looking metric previously reported in NERC's *2018 Summer Reliability Assessment*.[4] In addition to identifying reliability risks, NERC highlights significant work by industry to improve reliability. Analysis of the 2017 events and data drives six key findings.



Details in **Chapter 5**

### Key Finding 1: BPS Showed Improved Resilience during the NERC Category 5 Events

*Hurricanes Harvey and Irma resulted in NERC Category 5 Events, the highest severity level within the Event Analysis (EA) Process. While wind and water damage were record setting, the restoration efforts and subsequent recovery times were improved from historical benchmarks.*

Hurricane Harvey inflicted massive disruptions on the electric power system in south Texas, damaging 85 substations, over 850 transmission line structures, and causing 225 transmission line outages. Extensive flooding and storm debris challenged the recovery process. Use of amphibious vehicles, unmanned aerial vehicles (drones), and airboats to perform damage assessments allowed utilities to preplan prior to areas becoming accessible, expediting recovery efforts.

Similarly, Irma caused more electric outages than any storm in Florida history. In one utility's service territory alone, a total of 4.45 million customers lost power contrasted with the previous high of 3.24 million from Hurricane Wilma

[1] The delay in performance metrics reporting results from the time necessary for quarterly data collection, submission to NERC, and validation.
[2] The following is the definition of "Adequate Level of Reliability":
http://www.nerc.com/pa/Stand/Resources/Documents/Adequate_Level_of_Reliability_Definition_(Informational_Filing).pdf
[3] Chapter 3 presents **Table 3.1**, which summarizes the results of each of the original 16 reliability metrics for 2017. Supporting information for the complete set of metrics is included in **Appendix F**, including Metric M-1: Planning Reserve Margin. Metric M-4: Interconnection Frequency Response is the exception and is included in **Appendix E**.
[4] The *Summer Reliability Assessment 2018* can be found at the following location:
https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_05252018_Final.pdf
An excerpt of the first Key Finding on page six states, "The majority of assessment areas maintain sufficient resources to meet and exceed their Planning Reference Margin Levels for this summer. However, certain areas face additional operating challenges from either a resource shortfall or a diminishing resource surplus. Texas RE-ERCOT projects an Anticipated Reserve Margin of 10.9 percent. This Reserve Margin equates to a capacity shortfall of 2,000 MW based on the Reference Margin Level of 13.75 percent." This metric is a forward-looking metric and is a candidate for retirement from future State of Reliability reports.

AMERICAN OVERSIGHT

EXT-18-2615-C-000038

in 2005. System hardening between the storms increased resiliency and reduced restoration time from 18 days for Wilma to 10 days for Irma.[5]

**Recommendations**

1-1: **Emphasize Participation in Mutual Assistance Programs:** Mutual assistance agreements provided essential personnel, equipment, and material following Hurricanes Harvey and Irma. NERC should encourage participation with assistance from government and non-governmental authorities where applicable.

1-2: **Expand Use of Drones**: Coordination with government and first responders is critical for successful drone use. NERC, in collaboration with the industry, should publish a lesson learned to guide more effective drone use and inform government regulatory agencies that increased drone use can increase grid reliability.

1-3: **NERC Should Amplify Information Sharing:** NERC should publish event reports for both hurricanes and expand its outreach to include multimedia products and public presentations, including continuing collaborative efforts with the North American Generator Forum (NAGF), the North American Transmission Forum (NATF), and others to share reliability information and seek new venues for increased sharing.



Details in **Chapter 5**

### Key Finding 2: Inverter Disconnects during Transmission Disturbances Present an Emerging Risk

*A number of events have resulted in the wide-spread loss of BPS-connected inverter-based resources for different reasons. NERC initiated the Inverter-Based Resource Performance Task Force (IRPTF), which studied inverter performance under a variety of circumstances and informed industry on potential risks and their mitigation in 2017 and will continue to do so as long as the need exists.*

On August 16, 2016, a 500 kV line fault (during the Blue Cut Fire in San Luis Obispo County, California) resulted in a reduction of 1,000 MW of BPS-connected solar photovoltaic (PV) resources in CAISO.[6, 7] On October 9, 2017, a 220 kV and a 500 kV line (during the Canyon 2 Fire east of Los Angeles, California) each experienced phase-to-phase faults with normal clearing that resulted in the reduction of over 900 MW of solar PV across a wide area of the Southern California Edison footprint. The majority of these inverter-based resources tripped off-line due to sub-cycle transient overvoltages and instantaneous protective action at the inverters to disconnect them from the grid. A significant amount of inverters also entered momentary cessation during and following the fault events. The events were analyzed and an ERO event report was published.[8] NERC, NATF, NAGF, the Utility Variable-Generation Integration Group,[9] and EPRI are conducting webinars to inform industry on desired performance outcomes and inverter settings to achieve them.

[5] Florida Power & Light's public presentation to the DOE Electricity Advisory Committee regarding Hurricane Irma can be found at the following location: https://www.energy.gov/sites/prod/files/2018/02/f49/2_Emergency%20Response%20and%20Resilience%20Panel%20-%20Tom%20Gwaltney%2C%20FPL.pdf. See slide 4 for relative hurricane restoration times.

[6] See the Blue Cut Fire disturbance report at the following location: https://www.nerc.com/pa/rrm/ea/1200_MW_Fault_Induced_Solar_Photovoltaic_Resource_/1200_MW_Fault_Induced_Solar_Photovoltaic_Resource_Interruption_Final.pdf.

[7] See Level 2 NERC Alert, *Loss of Resources during Transmission Disturbances due to Inverter Settings* at the following location: https://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/NERC%20Alert%20Loss%20of%20Solar%20Resources%20during%20Transmission%20Disturbance.pdf.

[8] See the Canyon 2 Fire disturbance report at the following location: https://www.nerc.com/pa/rrm/ea/October%209%202017%20Canyon%202%20Fire%20Disturbance%20Report/900%20MW%20Solar%20Photovoltaic%20Resource%20Interruption%20Disturbance%20Report.pdf

[9] Utility Variable-Generation Integration Group changed its name to Energy Systems Integration Group in March 2018.



AMERICAN OVERSIGHT
EXT-18-2615-C-000039

| Recommendations | |
|---|---|
| 2-1: | **Alert Industry of Emerging Potential Risks to Reliability as Identified:** NERC developed a second Level II alert (industry recommendation) in May 2018 to further analyze inverter information and evaluate the extent of conditions associated with emerging issues. |
| 2-2: | **Publish a Reliability Guideline Regarding Inverter-Based Resources:** In coordination with the IRPTF, NAGF, vendors, and manufacturers, NERC should publish a reliability guideline to capture inverter-based resources' different performance characteristics, including coverage of planning, design, and coordination necessary for their reliable integration into the BPS. |
| 2-3: | **Include Vendors and Manufacturers in Analyses when Possible**: As the grid continues to rapidly transform, NERC must continue to track and trend occurrences and events to identify, analyze, and provide recommendations for risk mitigation. NERC must also augment collaboration with the technical committees by including vendors and manufacturers in the technical analysis of equipment performance and specifications. |




Details in **Chapter 6**

### Key Finding 3: No Loss-Of-Load Due to Cyber or Physical Security Events despite Continually Evolving Threats

*In 2017, there were no reported cyber or physical security incidents that resulted in a loss of load. Nonetheless, grid security, particularly cyber security, is an area where NERC and the industry must continually improve defenses as threats continue to rapidly evolve.*

While there were no NERC-reportable cyber security incidents during 2017 and therefore none that caused a loss of load, this does not necessarily suggest that the risk of a cyber security incident is low as the number of cyber security vulnerabilities are increasing.[10] Registered entities report physical security events to the E-ISAC as required by the NERC EOP-004-3 Event Reporting Reliability Standard. Key Finding 3 is a result of the total number of physical security reportable events[11] that occurred in 2017 and identifies how many have resulted in a loss of load. This finding does not include physical events affecting distribution-level equipment (i.e., non-Bulk Electric System (BES) equipment). Both mandatory and voluntary reporting indicate that distribution-level events are more frequent than those affecting BES equipment.

| Recommendations | |
|---|---|
| 3-1: | **Enhance Security Posture:** The industry should continue to drive improvements in its security posture through technological hardening, growing a culture of security, and effective information exchange between entities, the E-ISAC, and trusted partner organizations. |
| 3-2: | **Maturation of Security Standards:** The ERO Enterprise should continue to drive positive security outcomes by continual improvement of the Critical Infrastructure Protection (CIP) Standards and by effective execution of the compliance monitoring and enforcement program. Particular attention should be given to the next steps in assessing and responding to the recognized complexity of supply chain risks. |
| 3-3: | **Expand the Use of Systems such as the Cybersecurity Risk Information Sharing Program:** The E-ISAC should identify and evaluate opportunities to lower the cost of participation to include more entities, explore Department of Energy (DOE) funding for broader participation of defense critical electric infrastructure |

[10] ERO Reliability Risk Priorities, RISC Recommendations to the NERC Board of Trustees, November 2016, p. 9. Risk Mapping chart depicts Cyber Security Risk as having high potential impact and relative likelihood of BPS-wide occurrence.

[11] Reportable events are defined in Reliability Standard EOP-004-3 Event Reporting, Attachment 1.

AMERICAN OVERSIGHT



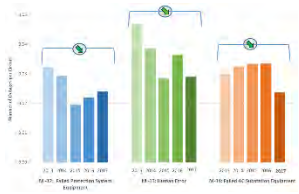
EXT-18-2615-C-000040

**Recommendations**

utilities, and support American Public Power Association (APPA) and National Rural Electric Cooperative Association (NRECA) member participation.

3-4: **Expand Data Input from Cross-Sector Public and Private Resources:** The E-ISAC should include other data sources, such as the Federal Bureau of Investigation (FBI), SANS Institute, Verizon, etc., as inputs for increasing awareness of the broader security landscape surrounding critical infrastructures. The E-ISAC should improve notification capabilities while reviewing and developing specific and purpose-built user community requirements.

3-5: **Strengthen Situational Awareness Capabilities:** NERC should also create, maintain, and support additional collaborative efforts to strengthen situational awareness for cyber and physical security while providing timely and coordinated information to industry. In addition, industry should continue to review its planning and operational practices to mitigate potential vulnerabilities to the BPS.[12] Timely and complete implementation of the E-ISAC strategic plan will substantially increase its tools and analytically capabilities in this area and will increase the ability to share this information with the industry.



Details in **Chapter 3**

### Key Finding 4: Transmission Outages Caused by Failed Protection System Equipment, AC Substation Equipment, or Human Error All Show a Decreasing Trend for the Last Five Years

*These three areas have historically been major causes of transmission outages. Each has trended downward for the last five years; however, these areas remain major contributors to transmission outage severity and will remain areas of focus.*

Transmission outage rates are trending lower while the overall correlation with outage severity has remained similar to past years. Transmission line sustained outages caused by Failed AC Circuit Equipment and Failed AC Substation Equipment (e.g., breakers, transformers) have remained top contributors to BPS transmission outage severity.

**Recommendations**

4-1: **Continue Emphasis on Human Performance (HP) Training:** NERC should continue to focus on HP training and education through conferences and workshops that increase knowledge and provide information to further mitigate risk scenarios related to transmission and generation outages.

4-2: **Expand Coordination and Collaboration:** NERC should increase collaboration with the NAGF, NATF, and other groups to expand education, outreach, and training to improve awareness of HP challenges for both industry and policy makers.

4-3: **Initiate Focused Collection and Assessment:** Industry should investigate the value of increased granularity of data collection for transmission outages caused by Failed AC Circuit Equipment, Failed AC Substation Equipment, and HP. NERC has published addendum documents[13] for the Event Analysis Program that elicit more event information for the aforementioned transmission outage types and will prepare detailed Failure Mode and Mechanism documents to guide industry analysis of such events.

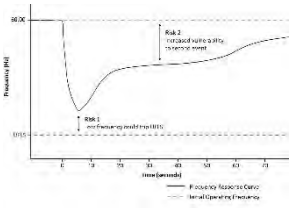
[12] See Reliability Standard EOP-004-3 Event Reporting at the following location: https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-004-3.pdf.

[13] See Reference Materials for Event Analysis at the following location: https://www.nerc.com/pa/rrm/ea/Pages/EA-Program.aspx

AMERICAN OVERSIGHT



EXT-18-2615-C-000041



Details in **Chapter 2**

**Key Finding 5: Frequency Response Performance Trends, while Remaining Acceptable, Are Showing Varied Results by Interconnection.**

*Individual Interconnection performance is separated into performance during the arresting period and during the stabilizing period. Three of the four Interconnections trended "improving" during the arresting period, and two of the four trended "improving" during the stabilizing period. No Interconnection experienced frequency response performance below its interconnection frequency response obligation (IFRO).*

Frequency response arrests and stabilizes frequency during system disturbances. NERC closely monitors the M-4 Interconnection frequency response metric (IFRO in the stabilizing period) as the rapidly changing resource mix must continue to provide sufficient amounts of frequency response;[14] this is an essential reliability service (ERS). NERC also emphasizes the importance of maintaining margin between the lowest frequency (nadir) of a loss of generation event (during the arresting period) and the respective Interconnection's underfrequency load shed (UFLS) setpoint. UFLS provides a vital BPS safety net; however, BPS operation should occur in such a way to avoid unnecessary UFLS activation.[15] Activation de-energizes prioritized load to protect the BPS as a whole, also protecting the highest priority distribution loads of police, fire, and hospital facilities.

Individual Interconnection performance is separated into performance during the arresting period and during the stabilizing period:

**Arresting Period:** Over the 2013–2017 operating years, the Eastern Interconnection (EI), the Texas Interconnection (TI), and the Québec Interconnection (QI) each had a statistically significant and improving frequency response trend during the arresting period. The Western Interconnection (WI) trend was neither statistically improving nor declining.

**Stabilizing Period:** Frequency response over the 2013–2017 operating years indicated that the WI and TI trends experienced statistically significant improvement during the stabilizing period. The EI and QI trends neither statistically improved nor declined. Interconnection performance differences impact decisions on resource characteristics vital to maintain the reliability of BPS.

| Recommendations[16] | |
|---|---|
| 5-1: | **Enhance Performance Analysis**: NERC should intensify efforts and analytical capability to measure the effects of the changing resource mix on frequency response and voltage support, including any effects related to distributed energy resources. |
| 5-2: | **Ensure Frequency Response Capabilities for New Generation Resources:** Regulators and markets should continue to support modifications and improvements to generator interconnection agreements. NERC should consider methods that promote improved margins between the nadir and the UFLS setpoint. NERC should also continue to provide protection against multiple frequency events. |

[14] The *Essential Reliability Services Task Force Measures Framework Report* can be found at the following location: http://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/ERSTF%20Framework%20Report%20-%20Final.pdf

[15] Reliability Standard PRC-006-3 — Automatic Underfrequency Load Shedding can be found at the following location: https://www.nerc.com/pa/Stand/Reliability%20Standards/PRC-006-3.pdf. In this standard's purpose statement, UFLS is characterized as providing "last resort system preservation measures."

[16] **Chapter 2** includes detailed recommendations that do not rise to the level of inclusion in the Executive Summary. These recommendations are specifically worded to provide guidance and consistency for related work in the *State of Reliability 2018*, in NERC's planned July 1 BAL-003 Informational Frequency Response filing in response to FERC Order 794, and for the ongoing work of the BAL-003 Standard Drafting Team.

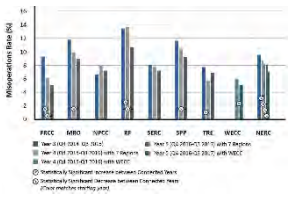
AMERICAN OVERSIGHT



EXT-18-2615-C-000042

## Recommendations[16]

5-3: **Expand Coordination and Outreach:** NERC should collaborate with the NAGF and others to increase frequency response awareness and capabilities. NERC should also expand education, outreach, and training to improve awareness of frequency response challenges for all levels of industry and policy makers.



Details in **Chapter 3**

### Key Finding 6: Protection Systems Misoperations Rates, while Remaining High Priority, Have Declined for the Fifth Consecutive Year.

*The overall NERC misoperation rate is lower in 2017 than 2016 (7.1 percent down from 8.3 percent), continuing a five-year trend of declining rates across North America. The three largest causes of misoperations in 2017 remained the same as in 2016: Incorrect Settings/Logic/Design Errors, Relay Failure/Malfunctions, and Communication Failures.*

Protection system misoperations exacerbate the impact of transmission outages, thereby increasing their severity. While the misoperation rate for some REs increased in 2017, the overall NERC 2017 misoperation rate is lower than 2016.[17] For the second year, the WECC Region's operation count was collected, enabling the WECC misoperation rate to be developed in 2017 (calculated to be 4.6 percent for 2017). Inclusion of the WECC rate lowers the 2017 NERC rate to 7.1 percent.

## Recommendations

6-1: **Continued Focus Merited, Alignment of Definitions Required:** Protection system misoperation should remain an area of focus, as it continues to be one of the largest contributors to the severity of transmission outages. NERC should publish detailed data reporting instructions (DRI) for misoperations to create better alignment of entity understanding and more consistent submissions of misoperation data.

6-2: **Expand Outreach Efforts:** Regional Entities should continue and expand efforts on education, outreach, and training with industry and stakeholders to reduce protection system misoperations. NERC should also continue to support the sharing of good industry practices and lessons learned to continue the downward trend.

6-3: **Leverage Complementary Work:** NERC should continue collaboration with the NATF, vendors, manufacturers, and others to understand, mitigate, and reduce the protection system misoperation rate and impact on the BES.

Foundational support for these findings and recommendations comprises the chapter content of the *State of Reliability 2018*. Specifics, analytics, and associated granular detail of the data makes up the content of the related appendices.

[17] The *State of Reliability 2017* stated the 2016 rate as 8.3 percent including WECC and 8.7 percent excluding WECC since that was the first year that WECC operations were reported to support a regional misoperation rate. *State of Reliability 2018* is the first report to include WECC for all NERC-level comparisons. Also, further analysis resulted in a correction to the 2016 NERC level misoperation rate without WECC, increasing it by 0.1 percent from 8.7 to 8.8 percent, which does not significantly impact the resulting conclusions on protection system performance.

AMERICAN OVERSIGHT



EXT-18-2615-C-000043

# Chapter 1: Availability Data Systems Assessment

This chapter provides an overview of BPS performance as indicated by the analyses of the Transmission Availability Data System (TADS), the Generation Availability Data System (GADS), and the Demand Availability Data System (DADS). These analyses, which are based on 2013–2017 data, provide a basis to evaluate 2017 performance relative to the previous years and performance trends over the last five years.

## Overview

The following is a summary of 2013–2017 performance of transmission, generation, and demand response:

- **Transmission System:** Overall, 2017 performance of the transmission system was steady over the five years and has improved as compared with 2016.
- **Generation System:** While the 2017 annual megawatt-weighted equivalent forced outage rate (WEFOR) is slightly above the five-year average, the trend over the five years shows improving reliability for the generator fleet.
- **Demand Response:** The 2013–2017 trend of demand response realization is improving.

Daily performance of transmission and generation systems is statistically analyzed in **Appendix A**.

## Highlights of TADS Analysis

TADS inventory and outage data are used to study the initiating cause codes (ICCs) and sustained cause codes (SCCs) of the transmission outages. This analysis can shed light on prominent and underlying causes affecting the overall performance of the BPS. A complete analysis of TADS data is presented in **Appendix B**.

NERC performed five focused analytical studies of TADS data from the 2013–2017 period. The following are the five studies:

1. 200 kV+ TADS ac circuit events (momentary and sustained) from 2013–2017 analyzed by ICC
2. 200 kV+ ac circuit common or dependent-mode (CDM) events, which resulted in multiple transmission element outages from 2013–2017 analyzed by ICC
3. 200 kV+ TADS ac circuit events (momentary and sustained) by Region from 2013–2017 analyzed by ICC
4. 100 kV+ TADS ac circuit and transformer sustained events from 2015–2017 analyzed by ICC
5. 100 kV+ TADS ac circuit sustained 2015–2017 outages analyzed by SCC and by pair ICC-SCC

The results of these studies are summarized with the following observations:

- **Controllable Cause Codes:** The overall number of events with a controllable ICC has reduced from 2016–2017. Excepting Vegetation, the individual cause codes also experienced a reduction in the number of events.
- **Failed AC Circuit Equipment and Failed AC Substation Equipment[18] Cause Codes:** Failed AC Circuit Equipment initiates and sustains more outages than any other cause code. When accounting for duration, sustained outages with the ICC-SCC Failed AC Circuit Equipment and ICC-SCC Failed AC Substation Equipment have notably higher contribution to the total transmission outage severity than any other ICC-SCC group for

[18] NATF's supplemental analyses indicate that, for the 2014–2016 period, the largest contributors to sustained outages for overhead ac circuits coded as Failed AC Substation Equipment are breakers (declining) and arresters (steady). To address these causes, NATF is collaborating with EPRI on an initiative to explore the failure mode for certain types of equipment. The EPRI Industry-Wide Transmission and Substation Performance Database is currently being used to gather information on transformers and arresters with plans to include breakers in the future.


AMERICAN OVERSIGHT
EXT-18-2615-C-000044

the three years in the study. Additional analyses into the causation of this are being planned with the TADS Working Group (TADSWG).

- **Misoperation Cause Code:** ICC Misoperation initiates the largest number of events with multiple outages (CDM events) than any other cause code. Also, this group is a top contributor to the total transmission outage severity (TOS) of the CDM events.
- **Unknown Cause Code:**[19] While still a top contributor, the ICC Unknown has continued to initiate fewer TADS events. The number of Unknown momentary and sustained events of 200 kV+ ac circuits had a statistically significant decrease, and the number of sustained events of 100 kV+ ac circuits initiated by Unknown also reduced.
- **Fire ICC:** In 2017, the number of events initiated by Fire was the largest number of events in the five years studied. These events were mostly initiated by wildfires that were prevalent in the WI throughout 2017.

**Figure 1.1** and **Figure 1.2** provide a graphic summary of Studies 1 and 4, respectively.

**Figure 1.1** represents an analysis of the TOS risk of the 2013–2017 TADS for the 200 kV+ ac circuits and provides a comparison with analogous results for 2012–2016.[20] A marker (bubble) represents a group of transmission outage events with a common ICC represented by a number.[21] The size/area of the marker represents the frequency of events initiated by the ICC and is proportional to the number of events initiated by a given cause. The x-axis is the magnitude of the correlation of a given ICC with the TOS. The y-axis represents the expected TOS of an event when it occurs. The color of the marker indicates if there is a correlation of the TOS with the given ICC (statistically significant positive correlation: red, statistically significant negative correlation: green, or no significant correlation: blue). For example, the location and color of the Misoperation bubble in **Figure 1.1** indicate that TADS events with an ICC of Misoperation have the highest expected TOS that is statistically significantly greater than the average TOS of all TADS events of 200 kV+ ac circuits while the events with ICC Misoperation are not very frequent as reflected by the average size of the bubble. The second biggest marker corresponds to the ICC Lightning that has no significant correlation with the TOS but shows a high relative transmission risk because of the high probability of events initiated by Lightning. The other two biggest ICC groups, Unknown and Weather (Excluding Lightning), have a statistically significant negative correlation with the TOS.

The bright colors correspond to groups of events in the 2013–2017 data, the faded colors correspond to the groups of events in the 2012–2016 data. Change in size or position of a bubble with the same number (delineating ICC) may indicate improved or declined performance. For three groups of events—initiated by Fire (3), Contamination (4), and Foreign Interference (13)—the average TOS did not reduce. Dry conditions in California drove at least the Fire category to slightly higher TOS. All other bubbles moved lower, showing a reduction in TOS of events initiated by a given cause. The overall average TOS of the 2013–2017 events were reduced compared with the 2012–2016 events. There were no significant changes in the size of the bubbles; some bubbles moved right (e.g., Contamination (4)) or left (e.g., Weather, Excluding Lightning (12)), pointing to increased or decreased correlation, respectively, of the group with the TOS.

[19] Per NATF's supplemental analyses, outages coded as "Unknown" continue to decrease overall with over 80 percent of those outages being investigated and/or patrolled in attempts to discover the actual cause. The overall decrease in "Unknown" outages can be attributed, at least in part, to this improvement in Transmission Owner/Operator investigative processes as well as NERC and Region actions on related recommendations from previous *State of Reliability* reports (**Chapter 7**).

[20] The detailed results of the analysis of the 2012–2016 TADS data are provided in the *State of Reliability 2017*.

[21] The three smallest groups of automatic events of the 200 kV+ ac circuits with ICCs Vegetation; Vandalism, Terrorism, and Malicious Acts; and Environmental comprise "Combined Smaller ICC groups" to reach a sufficient sample size for reliable statistical inference.

AMERICAN OVERSIGHT



EXT-18-2615-C-000045

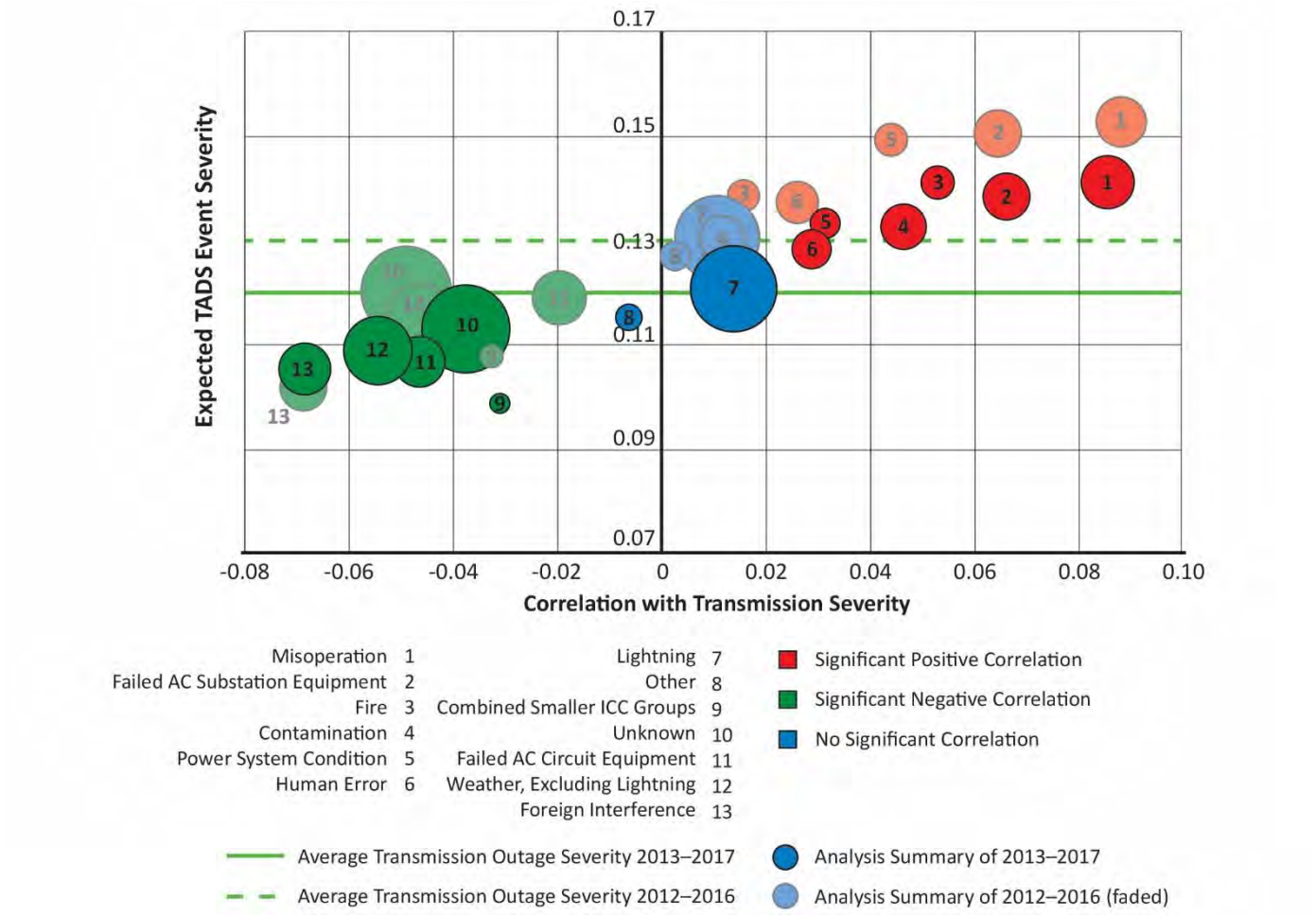



**Figure 1.1: Risk Profile of TADS 200 kV+ AC Circuit Events by ICC for the 2012–2016 Data versus the 2013–2017 Data**

**Figure 1.2** represents an analysis of the TOS risk of the 2015–2017 ICC study of sustained events of 100 kV+ ac circuits and transformers in the same format except that there is no comparison with the previous years since the data collection below 200 kV started only in 2015. The same two ICC groups as in **Figure 1.1**, Lightning and Other, are shown by blue markers indicating that events initiated by these two causes have no significant correlation with the TOS. In other words, Lightning and Other have about average TOS. Combined Smaller ICC Groups,[22] Fire, and Power System Condition initiate sustained ac circuit and transformer events with the highest TOS; however, these events happen very infrequently as reflected by small sizes of markers for these ICCs. In contrast, the biggest marker for Weather (Excluding Lightning) indicates the highest frequency of weather-initiated events. This leads to the highest relative risk of this group despite a lower TOS of its events.

[22] The three smallest groups of sustained events of the 100 kV+ ac circuits and transformers with ICCs Contamination; Vandalism, Terrorism, and Malicious Acts; and Environmental comprise "Combined Smaller ICC groups" to reach a sufficient sample size for reliable statistical inference.



AMERICAN OVERSIGHT
EXT-18-2615-C-000046

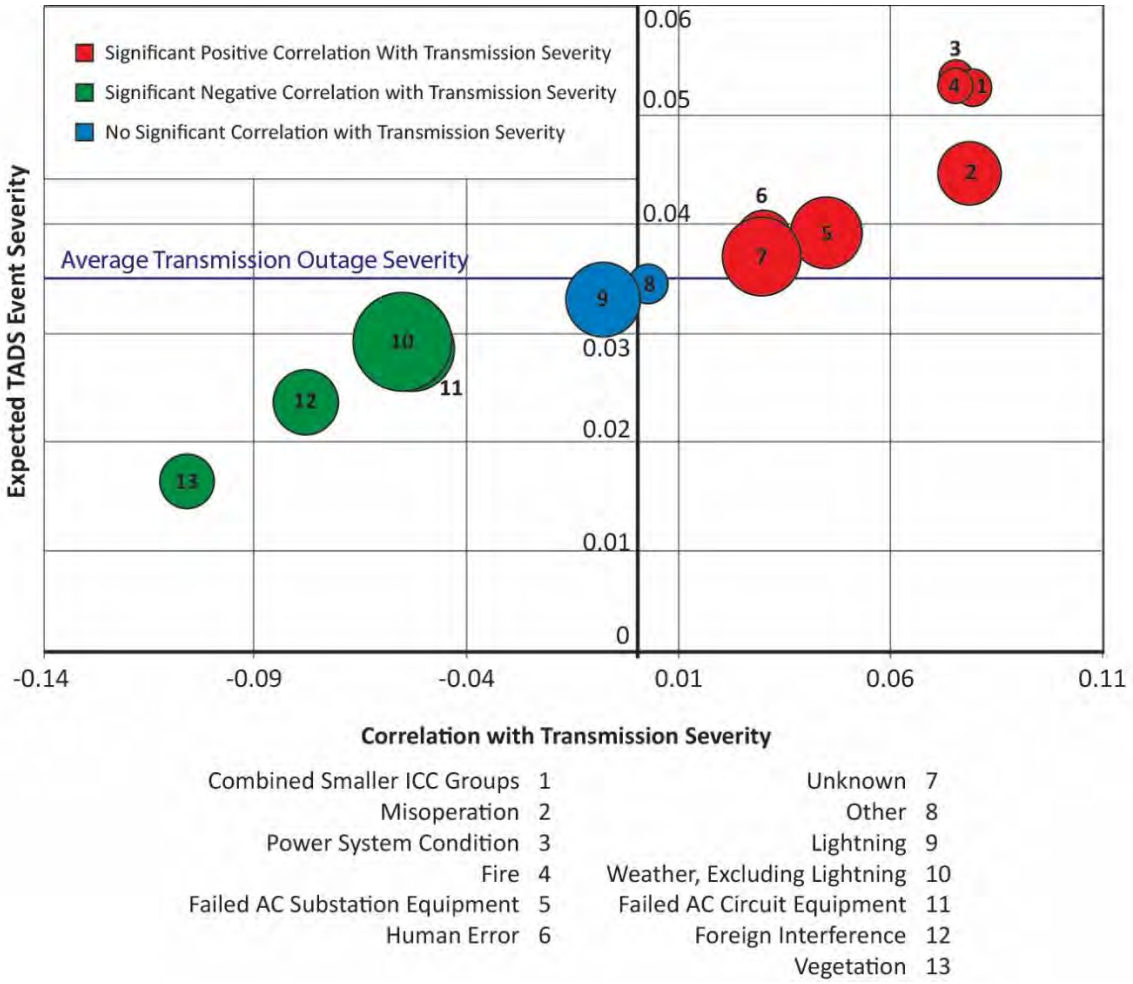



**Figure 1.2: Risk Profile of the 2015–2017 Sustained Events of 100 kV+ AC Circuits and Transformers by ICC**

## Highlights of GADS Analysis

GADS contains information that can be used to compute reliability measures, such as megawatt-WEFOR. WEFOR is a metric measuring the probability that a unit will not be available to deliver its full capacity at any given time due to forced outages and derates.

**Figure 1.3** presents the monthly WEFOR across the NERC footprint for the five-year period of 2013–2017.[23] The horizontal steps show the annual WEFOR compared to the monthly WEFOR; the solid horizontal bar in **Figure C.2** shows the mean outage rate over each year. The mean outage rate over the analysis period is seven percent. The WEFOR has been fairly consistent and has a statistical distribution that is nearly an exact standard distribution. While the 2017 annual WEFOR is slightly above the five-year average, the trend over the five years shows improving reliability.

[23] The reporting year covers January 1 through December 31.



AMERICAN OVERSIGHT
EXT-18-2615-C-000047

EXT-18-2615-C-000048

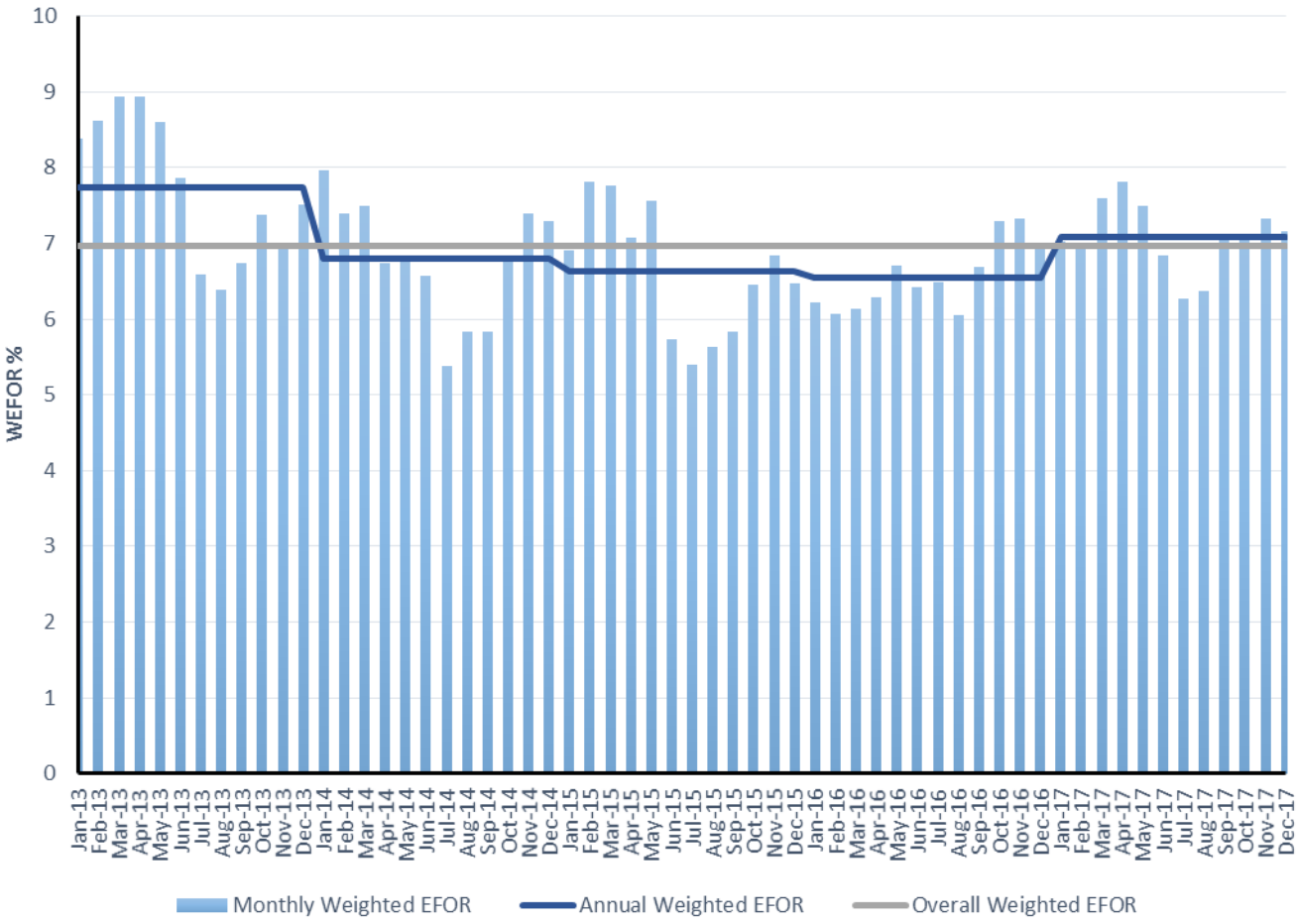



**Figure 1.3: Monthly Megawatt Capacity-Weighted EFOR 2013–2017**

Another analysis focuses on the seasonality of the Net TWh of potential production lost. Thus, both the amount of capacity affected and the duration of the forced outages are captured by season in Table 1.1.

**Table 1.1: Net TWh of Potential Production Lost Due to Forced Outages, by Calendar Year 2013–2017**

| NERC | Total Annual TWh | Summer TWh-Months | Winter TWh-Months | Spring/Fall TWh-Months |
|---|---|---|---|---|
| 2013 | 313.7 | 84.8 | 132.9 | 96.0 |
| 2014 | 278.6 | 73.6 | 97.4 | 107.6 |
| 2015 | 258.5 | 79.9 | 89.9 | 88.7 |
| 2016 | 257.0 | 89.1 | 74.5 | 93.4 |
| 2017 | 285.7 | 84.6 | 100.3 | 100.7 |

Based on the latest five years of available data for conventional generating units that are 20 MW and larger, the following observations can be made (as seen in Table 1.1):

AMERICAN OVERSIGHT

- Outages from severe storms in the last quarter of 2012, such as Superstorm Sandy, continued through the first quarter of 2013 and are responsible for the increase in production lost in Winter 2013.[24]
- The shoulder months of spring/fall in 2014, 2016, and 2017 have higher Net MWh attributed to forced outages than the corresponding summer or winter periods.

Additional analyses of GADS data for calendar years 2013–2017 is presented in **Appendix C**.

## Highlights of DADS Analysis

In 2017, the DADS Working Group (DADSWG) continued efforts to improve data collection and reporting through outreach and development of training materials. Future DADSWG efforts are focused on improving data collection, updating existing materials, developing additional guidance documents, maintaining data quality, and providing observations of possible demand response contributions to reliability. Demand response can support reliability during forecast or actual reserve shortages, reliability events, or assisting with frequency control. Of greatest significance is the improving realization rate for demand response activations.

An analysis of DADS data from 2013 through 2017 provides the following observations:

- Over the 2013–2017 period, the total registered capacity of demand response increased slightly year-over-year in the summer reporting period (two percent to 10 percent as reflected in **Figure D.1**). Over the five-year period, summer and winter enrolled demand response capacity have increased by 17 percent and 20 percent, respectively.
- Changes in enrollment due to regulatory policies in some areas have resulted in an eight percent increase in summer enrollment and redistribution of existing demand response resources to other service types, such as Non-Spinning Reserves and Emergency.
- The amount and types of demand response dispatched by season and year illustrate how much weather can affect the deployment of demand response (see **Figure D.5** and **Figure D.6**).
- The variability of which demand response is deployed may be a function of demand response program design rather than an indication of extensive reliability issues within a Region.
- The effectiveness of demand response to support reliability is illustrated by a comparison of the cumulative dispatched MW to the average realized reduction MW each season and year. Overall, the five-year performance trend for demand response is improving and shows an 88 percent realization rate. The summer performance is 83.8 percent for the five-year period and the winter performance is 99.7 percent (see **Figure D.7** and **Figure D.8**).

Additional analysis of the DADS data is presented in **Appendix D**.

[24] For this GADS analysis, the season of a forced outage is associated with the season in which the start date of the event was reported in that year; therefore, when an event continues into the next year, a new event record is created in January, resulting in the event impacts being categorized as occurring in the winter of the following year as well.



AMERICAN OVERSIGHT
EXT-18-2615-C-000049

# Chapter 2: Frequency Response

This chapter and **Appendix E** are comprised of an explanation of BPS Interconnection frequency response: its necessity and process as well as details of calculation and results of metric M-4, which was established to track and trend frequency response. **Appendix E** also provides introductory information on frequency measures established by the Essential Reliability Services Task Force. Frequency response and metric M-4 merit a separate chapter from the reliability metrics covered in **Chapter 3** and **Appendix F** for two reasons: The first is the potential impact on frequency response performance due to a changing resource mix and increase in renewable resources. The second is the enhanced scope of analysis to include the ability of the Interconnection to arrest the initial frequency decline immediately following the loss of a generation resource that results in a low frequency event.

## Metric M-4 Interconnection Frequency Response

Metric M-4 has two components of primary interest: performance of the Interconnection to arrest the frequency decline after a loss of generation event to prevent activation of UFLS and performance of the Interconnection to stabilize quickly at a high enough frequency to successfully respond to a second frequency event should one occur.[25, 26] The EI, QI, and TI showed statistically significant improvement in the arresting period time-trend from 2013 through 2017. The WI was statistically unchanged. The TI and WI exhibited statistically significant improvement during the stabilizing period from 2013 through 2017. The EI and QI were statistically unchanged in their performance during the stabilizing period from 2013 through 2017.

## Background

Primary frequency response is essential for maintaining the reliability of the BPS. Frequency maintained within predefined limits is a key ALR performance outcome. Frequency response is necessary to support BPS reliability during loss of generation resource or loss of load disturbances that result in frequency deviations; this is critical during system restoration efforts where frequency fluctuations must be controlled during load pick up and connection of additional resources. Frequency response and frequency control are often used synonymously and involve the ability of the BPS to support frequency following a disturbance.

Frequency response is comprised of the actions provided by the Interconnection to arrest and stabilize frequency in response to frequency deviations. Frequency response is provided from automatic generator governor response, load response (typically from induction motors), and facilities that provide an immediate change in output when frequency changes are detected by local device-level control systems. The purpose of the M-4 metric is to determine frequency response trends for each Interconnection so that adequate primary frequency control is provided to arrest and stabilize frequency during frequency excursions of a predefined magnitude. Frequency response is bidirectional and Interconnection resources should respond to loss of resource events that result in low frequency to avoid tripping the first stage of UFLS[27] as well as loss of load events that result in high frequency that could trip connected generation (over-frequency generation protection relays and turbine over-speed control action) from the BPS to prevent from damaging equipment.

[25] IFRO mitigates the second of these: stabilization at high enough frequency for a second successful event. NERC began to be additionally concerned with the margin between the lowest frequency (nadir) and the UFLS set point in the *State of Reliability 2016* report. The nadir margin concern has grown to now be at least equal with that of the IFRO.

[26] For full graphic representation and explanation of (loss of generation) frequency events, see **Figure E.1**.

[27] BES owners of UFLS-enrolled load support the concept and implementation of intentional loss of prioritized load to preserve the BPS backbone and to protect essential loads, such as police and fire stations and hospitals. However, despite rigorous design, implementation, and testing, full awareness exists that UFLS exposes these loads to inadvertent de-energization when HP errors occur. To avoid this and other HP associated reliability risks, NERC and NATF conduct their annual Improving Human Performance on the Grid conference in late March. This and other quality HP conferences and training mitigate these risks.

AMERICAN OVERSIGHT



EXT-18-2615-C-000050

The performance trends discussed in this report for the operating years 2013–2017 should be considered within the context of longer term trends analyzed and discussed in the *Frequency Response Initiative Report* from 2012.[28] A downward trend in frequency response over a number of years raised concerns that credible contingencies could result in frequency excursions that encroach on the first step of an Interconnection's UFLS. While recent initiatives have made progress in arresting the decline in measured frequency response, the growing complexities of primary frequency response due to changes in the resource mix and increased penetration of inverter based variable resources, such as wind and solar, keep this a concern.

In 2017, the NERC Standards Committee (SC) received two standard authorization requests (SARs) proposing revisions to the BAL-003-1.1 Reliability Standard. Several issues highlighted in these two SARs were anticipated and raised in more detail in the *NERC 2015* and *2016 Frequency Response Annual Analysis* reports.[29, 30] The SC appointed a standard authorization request (SAR) standard drafting team to develop one combined SAR. Upon SC endorsement of the combined SAR, the standard drafting team will consider modifications to the BAL-003-1.1 Reliability Standard to address the issues identified in the SAR through the standard development process. This effort is ongoing as of the date of this report.

## Interconnection Performance Summary

The following summary includes the observations and results of statistical analysis for each Interconnection.[31] Individual Interconnection performance is separated into performance during the arresting period and during the stabilizing period. Note that frequency response metrics (i.e., IFRO and Interconnection Frequency Response Performance Measure (IFRM)) are typically negative numbers expressed in MW/0.1 Hz, because the change in MW output should be in the opposite direction as the change in frequency. For this report, frequency response is expressed as an absolute value. The statistical analysis and data supporting these findings can be found in **Appendix E** along with additional statistical techniques and discussion of ERS measures.

**Table 2.1** provides a summary of the Interconnection performance statistics discussed above.

**Table 2.1: Interconnection Performance Summary Statistics**

| Interconnection | 2017 OY Largest Resource Loss | | 2017 OY Lowest A-B IFRM Performance | | 2013–2017 OY Arresting Period Performance Trend | 2013–2017 OY Stabilizing Period Performance Trend |
|---|---|---|---|---|---|---|
| | MW Loss | UFLS Margin (Hz) | MW Loss | UFLS Margin (Hz) | | |
| Eastern | 1,661 | 0.453 | 511 | 0.472 | Improving | No Change |
| Texas | 1,219 | 0.433 | 369 | 0.603 | Improving | Improving |
| Quebec | 954 | 0.873 | 314 | 1.199 | Improving | No Change |
| Western | 2,776 | 0.210 | 383 | 0.450 | No Change | Improving |

[28] The *2012 Frequency Response Initiative Report* can be found at the following location: http://www.nerc.com/docs/pc/FRI_Report_10-30-12_Master_w-appendices.pdf

[29] The *2015 Frequency Response Annual Analysis* report can be found at the following location: https://www.nerc.com/comm/OC/RS%20Landing%20Page%20DL/Related%20Files/2015_FRAA_Report_Final.pdf

[30] The *2016 Frequency Response Annual Analysis* report can be found at the following location: https://www.nerc.com/comm/OC/Documents/2016_FRAA_Report_2016-09-30.pdf

[31] In the 2016 operating year, a change in selection criteria was implemented that included frequency events with a smaller MW loss if the event resulted in a sufficient frequency deviation. Note that this change resulted in a larger sample of events for all Interconnections as compared to previous years and is meant to capture frequency response performance over a wider range of operating conditions (e.g., those that might occur during light load conditions when less generation is online and therefore the inertia and governor response of the Interconnections might be reduced). Due to this change, results of any detected statistically significant time trend or statistically significant difference in year-over-year performance can be partially due to the criteria modification.

AMERICAN OVERSIGHT



EXT-18-2615-C-000051

**Eastern Interconnection**

In the 2017 operating year, the largest resource loss for an M-4 event in the EI was 1,661 MW (versus a resource contingency criterion (RCC) of 4,500 MW) that resulted in a Point C frequency nadir of 59.953 Hz and UFLS margin of 0.453 Hz from a Value A starting frequency of 59.999 Hz. The event occurred in July 2017 during hour ending (HE) 13:00 EDT.

The lowest A-B IFRM performance for an M-4 event was 1,043 MW/0.1 Hz (versus an IFRO of 1,015) due to a resource loss of 511 MW resulting in a Point C frequency nadir of 59.972 Hz and UFLS margin of 0.472 Hz from a Value A starting frequency of 60.014 Hz. The event occurred in November 2017 during HE 04:00 EST.

**Arresting Period Performance:** The EI has seen increasing margins between Point C frequency nadirs and UFLS each of the five years evaluated in this report, suggesting that there is reduced risk during the arresting period of frequency events. In 2017, the smallest margin between the Point C nadir and UFLS was 0.435 Hz with no events lower than 0.400 Hz during the 2013–2017 operating years.

Note: statistical analysis indicates that, over the 2013–2017 operating years, the EI had an improving frequency response trend during the arresting period that was highly statistically significant.

**Stabilizing Period Performance:** The mean Value B in 2017 of 59.963 Hz was higher than all previous years, which suggests that there are improvements during the stabilizing period. However, the mean frequency response was lower in 2017 than all previous years since 2013. Of concern, variability increased again in 2017 with lower lows and higher highs and a larger standard deviation than all previous years. The EI had no years where its IFRM was below its IFRO.

Note: statistical analysis indicates that the EI frequency response time trend during the stabilizing period over the 2013–2017 operating years was neither improving nor declining.[32]

**Texas Interconnection**

In the 2017 operating year, the largest resource loss for an M-4 event in the TI was 1,219 MW (versus an RCC of 2,750 MW) that resulted in a Point C frequency nadir of 59.733 Hz and UFLS margin of 0.433 Hz from a Value A starting frequency of 60.005 Hz. The event occurred in November 2017 during HE 21:00 CST.

The lowest A-B IFRM performance for an M-4 event was 491 MW/0.1 Hz (versus an IFRO of 381) due to a resource loss of 369 MW resulting in a Point C frequency of 59.903 Hz and UFLS margin of 0.603 Hz from a starting frequency of 60.011 Hz. The event occurred in April 2017 during HE 08:00 CDT.

**Arresting Period Performance:** The TI has seen increasing margins between Point C frequency nadirs and UFLS (as measured by the mean) each of the five years evaluated in this report, suggesting that there is reduced risk during the arresting period of frequency events. However, the lowest Point C to UFLS margin for each of those operating years shows no clear trend. In 2017, the smallest margin between the Point C nadir and UFLS was 0.433 Hz with no events lower than 0.400 Hz during the 2013 to 2017 operating years.

Note: statistical analysis indicates that, over the 2013–2017, operating years the TI had an improving frequency response trend during the arresting period that was highly statistically significant.

**Stabilizing Period Performance:** The mean Value B in 2017, of 59.930 Hz, was higher than all previous years, which suggests that there are improvements and reduced risk during the stabilizing period. Frequency response variability

[32] A statistical test is performed to determine if the time trend-line is increasing or decreasing. A statistically significant trend means that the slope, positive or negative, is unlikely to have occurred by chance. The complete statistical analysis can be found in **Appendix E**.

AMERICAN OVERSIGHT



EXT-18-2615-C-000052

also decreased in 2017 compared to 2016 with a smaller standard deviation suggesting improved predictability of performance. In 2017, the minimum individual event performance of 491 MW/0.1 Hz was the highest seen during all years evaluated in this report.

Note: statistical analysis indicates that the TI frequency response time trend during the stabilizing period, has improved over the 2013–2017 operating years.

**Québec Interconnection**

In the 2017 operating year, the largest resource loss for an M-4 event in the QI was 954 MW (versus an RCC of 1,700 MW) that resulted in a Point C frequency nadir of 59.373 Hz and UFLS margin of 0.873 Hz from a Value A starting frequency of 59.947 Hz. The event occurred in August 2017 during HE 21:00 EDT.

The lowest A-B IFRM performance for an M-4 event was 221 MW/0.1 Hz (versus an IFRO of 179) due to a resource loss of 314 MW, resulting in a Point C frequency of 59.699 Hz and UFLS margin of 1.199 Hz from a starting frequency of 60.063 Hz. The event occurred in June 2017 during HE 23:00 EDT.

**Arresting Period Performance:** In 2017 the QI saw the largest margin between Point C frequency nadir and UFLS than all previous years evaluated in this report, suggesting that there is reduced risk during the arresting period of frequency events. However, in 2017 the mean resource MW loss was the smallest and mean Value A starting frequency was the highest of all previous years, which should be considered when evaluating the improved UFLS margin. On an annual basis, the QI continues to exhibit the largest margins between Point C frequency nadir and UFLS of all Interconnections with the exception of 2013.

Note: statistical analysis indicates that, over the 2013–2017 operating years, the QI had an improving frequency response trend during the arresting period that was highly statistically significant.

**Stabilizing Period Performance:** The mean Value B in 2017 of 59.895 Hz was higher than all previous years, which suggests that there are improvements and reduced risk during the stabilizing period. However, the mean B-C margin of 0.304 Hz was the smallest of all years except 2015. Performance variability during the stabilizing period also increased in 2017 with lower lows and higher highs and larger standard deviation than all previous years.

Note: statistical analysis indicates that the QI frequency response time trend over the 2013–2017 operating years was neither statistically improving nor declining.

**Western Interconnection**

In the 2017 operating year, the largest M-4 event in the WI was 2,776 MW (versus an RCC of 2,626 MW), which was the result of a Pacific Northwest remedial action scheme[33] (RAS) with a Point C of 59.710 Hz and UFLS margin of 0.210 Hz from a Value A starting frequency of 60.019 Hz. The event occurred in April 2017 during the HE 23:00 PDT.

The lowest A-B IFRM performance for an M-4 event was 870 MW/0.1 Hz (versus an IFRO of 858) due to a resource loss of 383 MW resulting in a Point C frequency of 59.950 Hz and UFLS margin of 0.450 Hz from a starting frequency of 60.022 Hz. The event occurred in April 2017 during HE 20:00 PDT.

[33] It should be noted that this event was the activation of one the Pacific Northwest RAS identified and studied in the *2013 Frequency Response Annual Analysis* (see footnote 34). These RAS events may cause a larger MW loss than the elected RCC, but their net impact to the Interconnection frequency is less than that of the RCC due to the difference in transmission system losses caused by the difference in distance from the lost resources to major load centers.

AMERICAN OVERSIGHT



EXT-18-2615-C-000053

**Arresting Period Performance:** In 2017, the WI experienced an event where the Point C nadir was 59.697 Hz, resulting in a Point C to UFLS margin of 0.197 Hz, the smallest margin since a 0.171 Hz event in 2014. The resource MW loss for these two events were 2,685 MW and 2,826 MW, respectively, more than double the mean resource MW loss for each year and close to the RCC of 2,626 MW defined in the *2016 Frequency Response Annual Analysis*[34] and used to calculate 2017 IFROs.

Note: over the 2013–2017 operating years, statistical analysis indicates that the WI frequency response trend was neither statistically improving nor declining during the arresting period,

**Stabilizing Period Performance:** The mean frequency response in 2017 of 1,836 MW / 0.1 Hz was the highest of all years evaluated in this report, albeit with increased variability and larger standard deviation. The WI had no events in 2017 where its IFRM was below its IFRO, including the event noted above where the Point C nadir to UFLS margin was less than 0.200 Hz.

Note: statistical analysis indicates that the WI mean frequency response time trend over the 2013-2017 operating years saw a statistically significant improvement.

## Summary of Findings and Recommendations[35]

**Finding 1:** The largest M-4 frequency events, based on size of the resource loss, varied significantly between Interconnections during the 2017 operating year. The largest resource loss in the EI was 1,661 MW, which is 37 percent of the RCC. When compared to their respective Interconnection's RCCs, the TI, QI, and WI experienced events during the 2017 operating year where the resources losses were 44 percent, 56 percent, and 106 percent of their RCCs, respectively. The magnitude of the resource loss has a direct impact on Interconnection performance calculation as measured by IFRMs and Point C to UFLS margins.

**Recommendation 1:** NERC should, in coordination with NERC technical committees and staff, review and evaluate historic resource loss events and the method used to determine the appropriate RCC for each Interconnection.

**Finding 2:** The size of the resource loss has a significant impact on Interconnection performance as measured by IFRM. The resulting IFRM is not necessarily an accurate indicator of risk. For example, in the 2017 operating year, the lowest A-B IFRM performance for each Interconnection occurred when the resource loss was well below the largest resource loss and the Point Cs were well above UFLS set points.

**Recommendation 2:** NERC should, in coordination with NERC technical committees and staff, evaluate the effectiveness of IFRM and IFRO as the preferred indicators of risk to BPS reliability. This could include consideration of alternate methods for establishing Interconnection performance parameters necessary to mitigate risk during both the arresting and stabilizing periods of frequency events that may include, but not be limited to, consideration of frequency responsive reserves and the impact of changing trends in Interconnection-wide inertia.

**Finding 3:** The risk of poor frequency response performance during the arresting period is higher in comparison to the stabilizing period due to the risk of activating UFLS that results in the loss of Interconnection load and possible instability. The EI, TI, and QI experienced statistically significant improving performance trends during the arresting period through the 2013 to 2017 operating years. The corresponding WI performance trend was statistically neither

[34] The *2016 Frequency Response Annual Analysis* can be found at the following location: https://www.nerc.com/comm/OC/Documents/2016_FRAA_Report_2016-09-30.pdf

[35] These findings and recommendations do not rise to a level to bring forward into the **Executive Summary**. They are specifically worded to provide guidance and consistency for related work in the *State of Reliability 2018*, in NERC's planned July 1, BAL-003 Informational Frequency Response filing in response to FERC Order 794, and for the ongoing work of the BAL-003 Standard Drafting Team.

AMERICAN OVERSIGHT



EXT-18-2615-C-000054

improving nor declining. While the monitoring of statistical performance trends (during the arresting period) is helpful, it is important to pay attention to individual event performance due to the risk of activating UFLS for a single event.

**Recommendation 3:** NERC should, in collaboration with the Resources Subcommittee (RS) and the NAGF, develop methods that promote improved performance during the arresting period and minimize the risk of activating UFLS for any single event.

**Finding 4:** The TI and WI experienced improving performance trends during the stabilizing period that were statistically significant through the 2013 to 2017 operating years. The corresponding trends for the EI and QI were neither statistically improving nor declining over the same period.

**Recommendation 4:** NERC should, in collaboration with the RS and NAGF, continue the outreach to maximize the number of generators in the existing generation fleet that are capable of providing primary frequency response and pursue the addition of a frequency bias in all outer loop controls for both conventional generation and inverter-based resources to prevent withdrawal or squelching of primary frequency response.

**Finding 5:** All Interconnections except TI experienced increased variability in frequency response performance during the stabilizing period of frequency events. This could be due in part to increased variability in the size of the resource losses; limited Balancing Authority (BA) monitoring of frequency responsive reserves in real-time could also be a contributor.

**Recommendation 5:** NERC, in collaboration with the NERC RS, should explore methods that result in reduced variability and increased predictability of frequency response performance that could include, but not be limited to, BA monitoring of frequency responsive reserves in real time and identification of impediments to doing so.

AMERICAN OVERSIGHT



EXT-18-2615-C-000055

# Chapter 3: Reliability Indicator Trends

This chapter provides a summary of the reliability indicators and follows with a section on select metrics determined to best communicate the *State of Reliability 2018*, including its most challenging and improving trends and those supporting the key findings detailed in the **Executive Summary**. Other metrics and any supporting material can be found in **Appendix F**. However, one metric (metric M-4, Interconnection Frequency Response) is discussed instead in **Chapter 2** with details explored in the **Metric M-4: Interconnection Frequency Response** section of **Appendix E**.

NERC reliability indicators tie the performance of the BPS to a set of reliability performance objectives included in the approved 2012 ALR definition.[36] This set of seven NERC reliability performance objectives are mapped to the current reliability indicators[37] and are then evaluated to determine whether the BPS meets the ALR definition and whether overall reliability is improving or declining. **Table 3.1** provides a summary of the trends over the past five years by providing a performance rating of improving, declining, stable, or inconclusive based on analysis of available data.

## Summary

When reviewing the reliability indicators it is important to note the following:

- **Table 3.1** lists each reliability indicator with its metric trend rating(s). Additional information for each metric can be found later in this chapter (in **Chapter 2** for Metric M-4) and in **Appendix F**.
- The PAS annually reviews the reliability indicators to identify gaps in performance or data collection. Over time, PAS has implemented changes, added new indicators, and retired some indicators to keep the others relevant. An example of a recent change would be the alignment of M-12 through M-16 to the BES definition. Future developments may include the adoption of ERS Working Group (ERSWG) measures[38] with near-term focus on Measure 7: Reactive Capability on the System. PAS has solicited voluntary industry data submission to support the measure, and the Systems Analysis and Modeling Subcommittee (SAMS) is using this data to evaluate the measure's value.
- Metrics are evaluated over different periods of time. This can be attributed to the period established with the approved metric definition, the duration for what data are available, or other data limitations. For example, M-4 Interconnection Frequency Response has a period defined as "1999 or when data are first available," and M-12 has a time frame defined as "a rolling five-year average."
- Metrics may be defined to be NERC-wide, for a specific Region, or on Interconnection-level basis.
- The ALR defines the state of the BES to meet performance objectives. Reliability performance and trends of individual metrics should be evaluated within the context of the entire set of metrics.
- It is important to retain the anonymity of individual reporting entities when compiling the data necessary to evaluate metric performance. Details presented in this report are aggregated to maintain the anonymity of individual reporting organizations.

[36] Definition of "Adequate Level of Reliability" is as follows:
http://www.nerc.com/comm/Other/Adequate%20Level%20of%20Reliability%20Task%20Force%20%20ALRTF%20DL/Final%20Documents%20Posted%20for%20Stakeholders%20and%20Board%20of%20Trustee%20Review/2013_03_26_ALR_Definition_clean.pdf

[37] The current reliability indicators can be found at the following location:
http://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2014_SOR_Final.pdf

[38] The ERSWG Framework Measures report can be found at the following location:
http://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/ERSTF%20Framework%20Report%20-%20Final.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000056

| Table 3.1: Metric Trends | | |
|---|---|---|
| **Metric** | **Description** | **Trend Rating** |
| M-1 | Planning Reserve Margin | Stable except for TI<br>**Appendix F** |
| M-2 | BPS Transmission-Related Events Resulting in Loss of Load (modified in early 2014) | Improving |
| M-3 | System Voltage Performance (discontinued in 2014) | Retired—**Appendix F** |
| M-4 | Interconnection Frequency Response | Arresting Phase—EI, QI, and TI improving; WI no change<br><br>Stabilizing Phase—TI and WI improving; EI and QI unchanged<br><br>See **Chapter 2** |
| M-5 | Activation of Underfrequency Load Shedding (discontinued in 2014) | Retired |
| M-6 | Average Percent Non-recovery Disturbance Control Standard Events | Improving—**Appendix F** |
| M-7 | Disturbance Control Events Greater than Most Severe Single Contingency | Stable–**Appendix F** |
| M-8 | Interconnection Reliability Operating Limit/System Operating Limit (IROL/SOL) Exceedances (modified in 2013) | EI—Improving—**Appendix F** |
| | | ERCOT—Stable—**Appendix F** |
| | | WI—Stable—**Appendix F** |
| | | QI—Retired—**Appendix F** |
| M-9 | Correct Protection System Operations | Improving |
| M-10 | Transmission Constraint Mitigation (discontinued in 2016) | Retired |
| M-11 | Energy Emergency Alerts (modified in 2013) | Inconclusive–events up; load loss down<br>**Appendix F** |
| M-12 | Automatic AC Transmission Outages Initiated by Failed Protection System Equipment (modified in late 2014) | Circuits—Improving |
| | | Transformers—Improving |
| M-13 | Automatic AC Transmission Outages Initiated by Human Error (modified in late 2014) | Circuits—Improving for 200 kV+; Inconclusive for 100 kV+ |
| | | Transformers—Improving |
| M-14 | Automatic AC Transmission Outages Initiated by Failed AC Substation Equipment (modified in late 2014) | Circuits—Stable |
| | | Transformer—Improving |
| M-15 | Automatic AC Transmission Outages Initiated by Failed AC Circuit Equipment (modified in late 2014; normalized by line length) | Inconclusive |
| M-16 | Element Availability Percentage (APC) and Unavailability Percentage (modified in 2013) | Circuits—Inconclusive |
| | | Transformers—Improving |

AMERICAN OVERSIGHT



EXT-18-2615-C-000057

# M-2 BPS Transmission-Related Events Resulting in Loss of Load

## Background

This metric measures BPS transmission-related events that result in the loss of load, excluding weather-related outages. The underlying data that is used for this metric is important for operators and planners in assessing how effective their design and operating criteria are. All other metrics support M-2.

Consistent with the revised metric approved by the OC and PC in March 2014, an "event" is an unplanned disturbance that produces an abnormal system condition due to equipment failures/system operational actions (either intentional or unintentional) that result in the loss of firm system demands. This is identified by using the subset of data provided in accordance with Reliability Standard EOP-004-3.[39] The reporting Criteria for such events, beginning with data for events occurring in 2013, are as follows:[40]

1. The loss of firm load for 15 minutes or more:
    a. 300 MW or more for entities with previous year's demand of 3,000 MW or more
    b. 200 MW or more for all other entities
2. A BES emergency that requires manual firm load shedding of 100 MW or more
3. A BES emergency that resulted in automatic firm load shedding of 100 MW or more via automatic undervoltage or underfrequency load shedding schemes or special protection systems (SPSs)/RASs[41]
4. A transmission loss event with an unexpected loss within an entity's area, contrary to design, of three or more BES elements caused by a common disturbance (excluding successful automatic reclosing), resulting in a firm load loss of 50 MW or more

PAS reviewed this M-2 metric in 2013 and made changes to its criteria to increase consistency with EOP-004-3 criteria for reporting transmission-related events that result in loss of load. The criteria presented above were approved for implementation in the first quarter of 2014. Changes in the annual measurement between 2012 and 2013 therefore reflect the addition of Criteria 4, which has been applied to the data since 2013. For the first part of the analysis below, shown in **Figure 3.1** and **Figure 3.2**, historical data back to 2002 was used and the new Criteria 4 was not included to allow trending of the other aspects of the metric over time. **Figure 3.3** includes all of the criteria, consequently it was only evaluated for 2013–2016; the time period for which data collection associated with the new criteria was available. The performance trend is continuing to improve.

## Assessment

**Figure 3.1** shows the number of BPS transmission-related events that resulted in the loss of firm load from 2002–2017. On average, just under eight events were experienced per year. The BPS experienced one transmission load loss events in 2017. This continues a mixed, but nonetheless improved, trend since 2012 in the number of events.

**Figure 3.2** indicates that the top three years in terms of load loss remain 2003, 2008, and 2011 due to the major loss-of-load events that occurred. In 2003 and 2011, one event accounted for over two-thirds of the total load loss, while in 2008, a single event accounted for over one-third of the total load loss.

[39] Reliability Standard EOP-004-3 can be found at the following location: https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-004-3.pdf

[40] ALR 1-4 Reporting Criteria can be found at the following location: http://www.nerc.com/comm/PC/Performance%20Analysis%20Subcommittee%20PAS%202013/ALR1-4_Revised.pdf

[41] The Glossary of Terms Used in NERC Reliability Standards can be found at the following: https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf. This document defines SPS as a Special Protection Scheme and an RAS as a Remedial Action Scheme. The document provides a wealth of related information.



AMERICAN OVERSIGHT
EXT-18-2615-C-000058

Load loss excluding Criteria 4 is less for 2017 than for any year since 2002 inclusive. Load loss over the last four years remains below the median value. This also continues a mixed, but improved, trend since 2011 in the total annual load loss from these events.

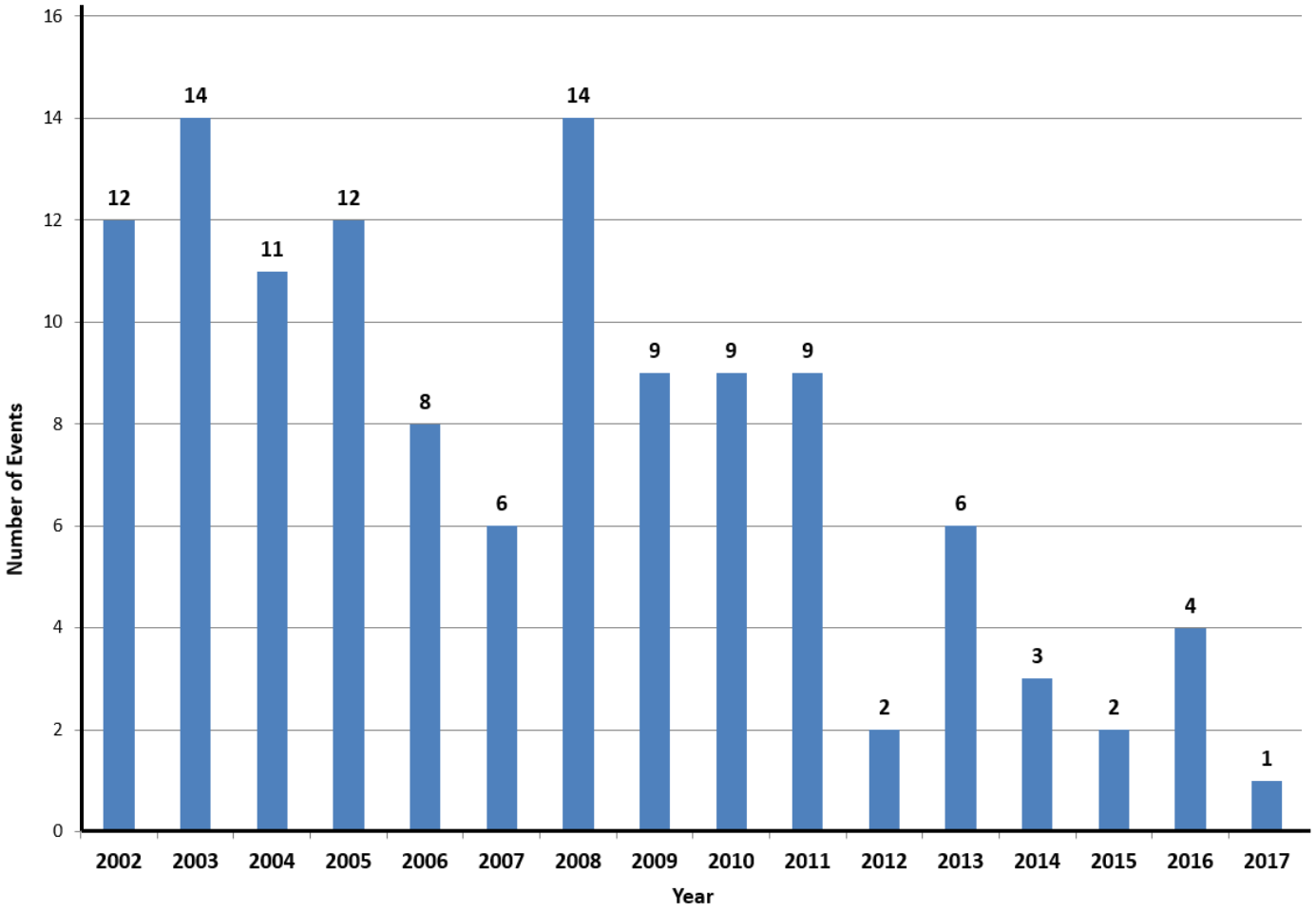



**Figure 3.1: M-2 BPS Transmission Related Event Resulting in Load Loss (Excluding Criteria 4)**

AMERICAN OVERSIGHT



EXT-18-2615-C-000059

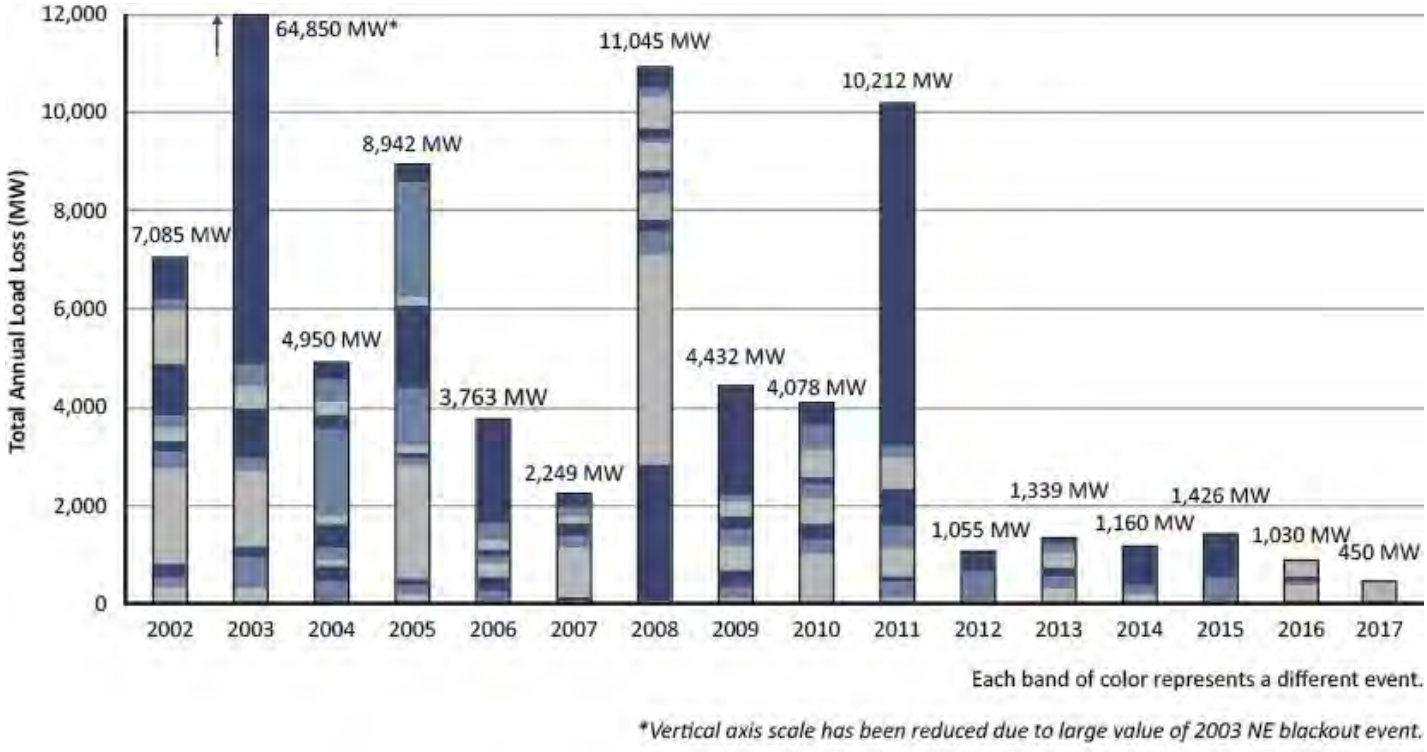



**Figure 3.2: M-2 BPS Transmission-Related Events Resulting in Load Loss (Excluding Criteria 4)**

**Figure 3.3** shows the number of events resulting in firm load loss of 50 MW or greater from 2013–2017 and their durations. The metric was modified in 2013 to include Criteria 4 events. There were six events during 2017 (one under Criteria 4. See **Figure 3.2**) with load loss of ≥ 50MW. For 2017 the largest number of load loss events was between one and 2.99 hours.

AMERICAN OVERSIGHT



EXT-18-2615-C-000060

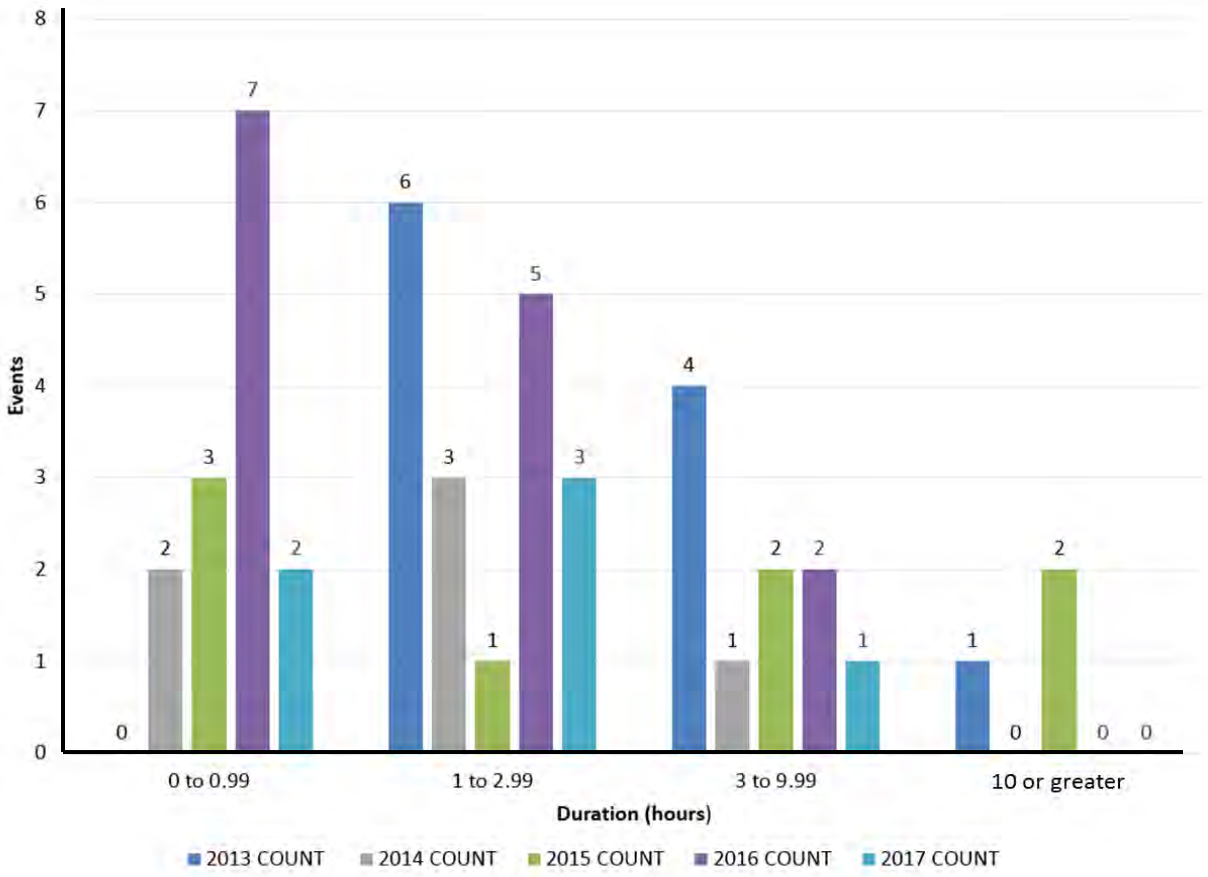



**Figure 3.3: Outage Duration vs. Events**

# M-9 Correct Protection System Operations

## Background

The correct protection system operations metric provides the performance of protection systems (both generator and transmission) on the BPS. The metric is the ratio of correct protection system operations to total system protection system operations.

Protection system misoperations have been identified as a major area of concern, as stated in previous State of Reliability reports, because misoperations exacerbate event impacts for the BPS. Improvements to data collection that the System Protection Control Subcommittee (SPCS) proposed were implemented as a result;[42] NERC coordinates with each Region as well as these groups to continue the focus on improvements. Both correct operations and misoperations are including in the information below.

## Assessment

The analysis of the misoperation and operation data, summarized in **Figure 3.4**, **Figure 3.6**, **Figure 3.7**, and **Table 3.2**, leads to a conclusion about an improving performance of M-9 from Q4 2012 through Q3 2017.

**Figure 3.4** shows the total correct operations rate for NERC through the first three reporting quarters of 2017.

[42] SPCS proposed improvements to data collection can be found at the following location: http://www.nerc.com/comm/PC/Protection%20System%20Misoperations%20Task%20Force%20PSMTF%202/PSMTF_Report.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000061

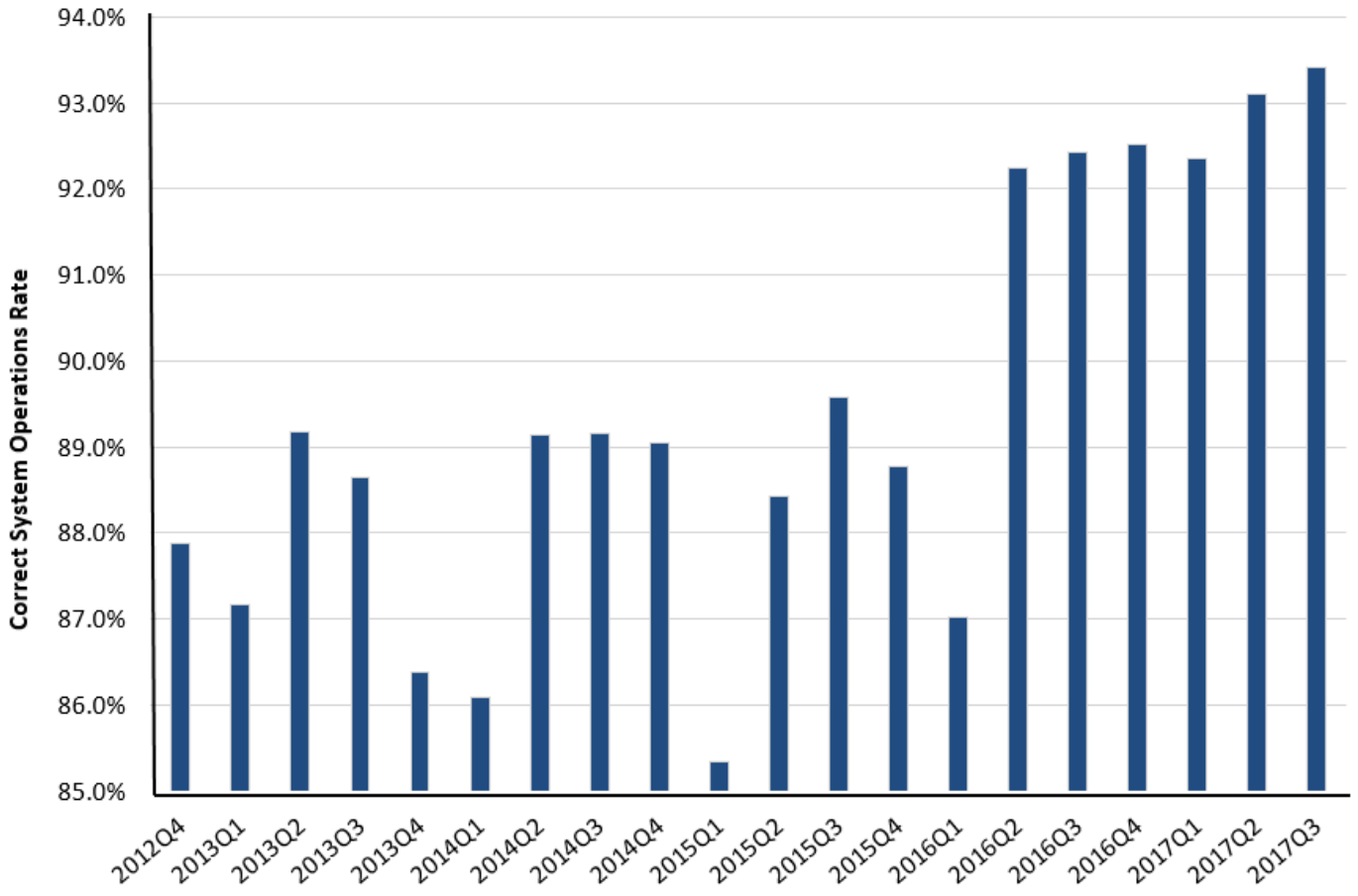



**Figure 3.4: Correct Protection System Operations Rate**

Figure 3.5 shows the Regional misoperation rates for the five-year data combined (from Q4 2012 through Q3 2017). NPCC's rate was calculated based on the Q1 2013 through Q3 2017 data. WECC's rate was calculated based on the Q2 2016 through Q3 2017 data.[43]

[43] WECC's operation data submission started in Q2 2016.



AMERICAN OVERSIGHT
EXT-18-2615-C-000062

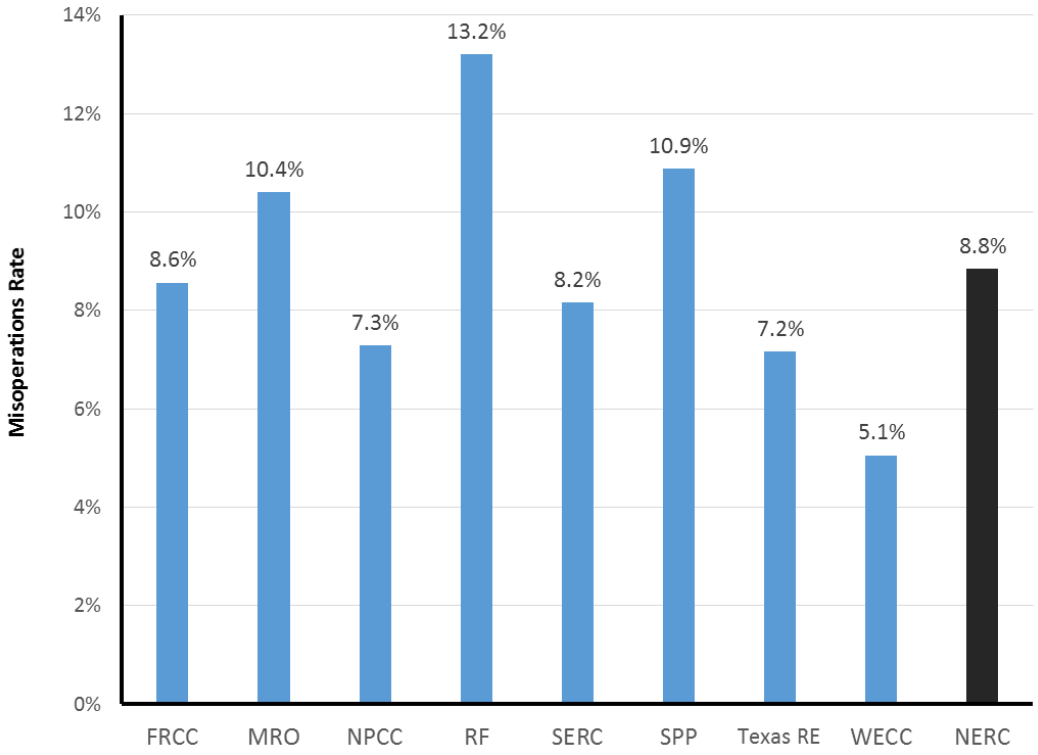



**Figure 3.5: Five-Year Misoperation Rate by Region (Q4 2012 through Q3 2017)**

## Year-Over-Year Changes by Region

Changes from the first four quarters (Q4 2012 through Q3 2013, Year 1) to the second four quarters (Q4 2013 through Q3 2014, Year 2) to the third four quarters (Q4 2014 through Q3 2015, Year 3) to the fourth four quarters (Q4 2015 through Q3 2016, Year 4) to the fifth four quarters (Q4 2016 through Q3 2017, Year 5) were studied to compare time periods with similar composition of seasons.[44] The changes by Region are shown in **Figure 3.6**. In **Figure 3.6**, Regions are listed alphabetically from left to right. Tests[45] on misoperation rates found the statistically significant year-to-year changes shown in **Figure 3.6** by arrows. Red arrows signify increased rates (a declining performance), and green arrows signify decreased rates (an improving performance).

[44] Year-over-year changes in historical rates shown in this report reflect improvements in data quality resulting from the standardization and automation of the collection of protection system operations and misoperations data in 2016.

[45] Large sample test on population proportions at the 0.05 significance level



AMERICAN OVERSIGHT
EXT-18-2615-C-000063

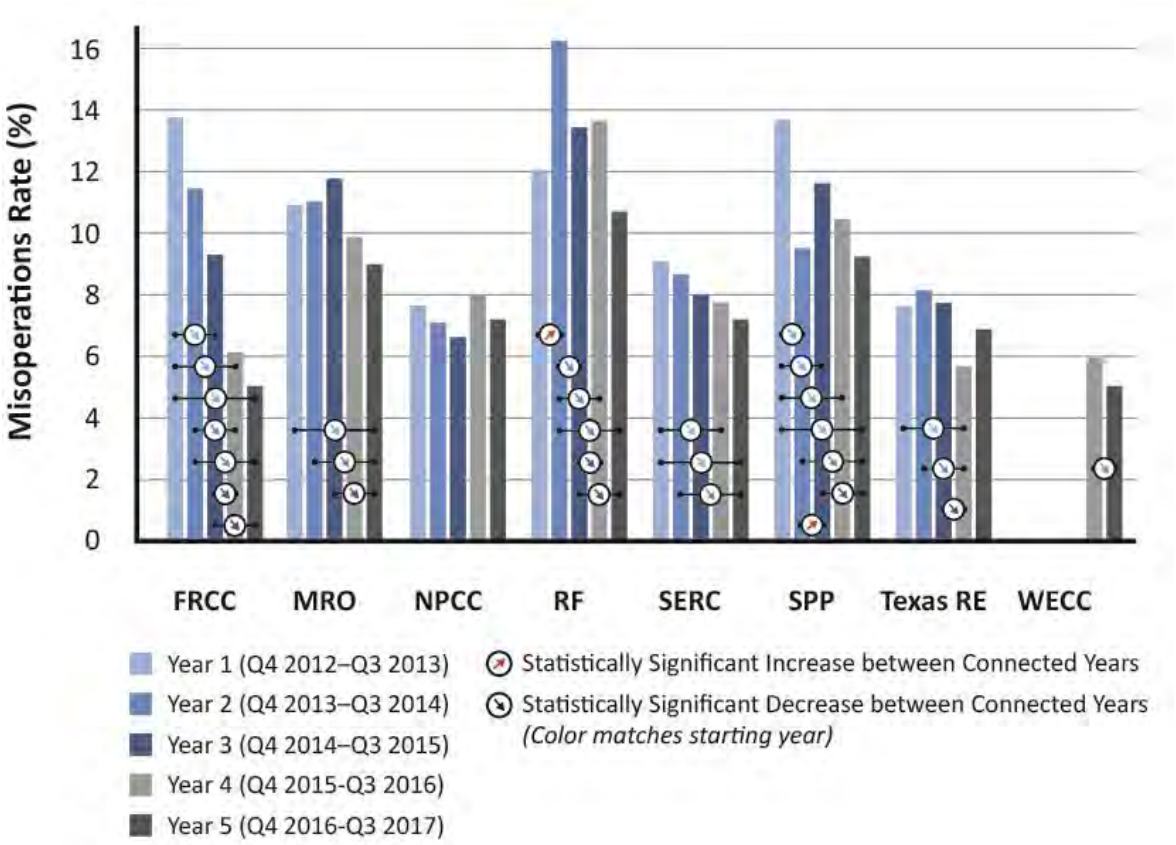



**Figure 3.6: Year-Over-Year Changes in Misoperation Rate by Region**

The annual changes in NERC's misoperation rate are shown in **Figure 3.7**. For Year 4, the misoperation rate is calculated in two ways: for seven Regions (excluding WECC), and for all eight Regions (WECC misoperation and operation counts included for Q2 and Q3 2016). For Year 5, the misoperation rate is calculated in two ways: for seven Regions (excluding WECC) and for all eight Regions including WECC.

AMERICAN OVERSIGHT



EXT-18-2615-C-000064

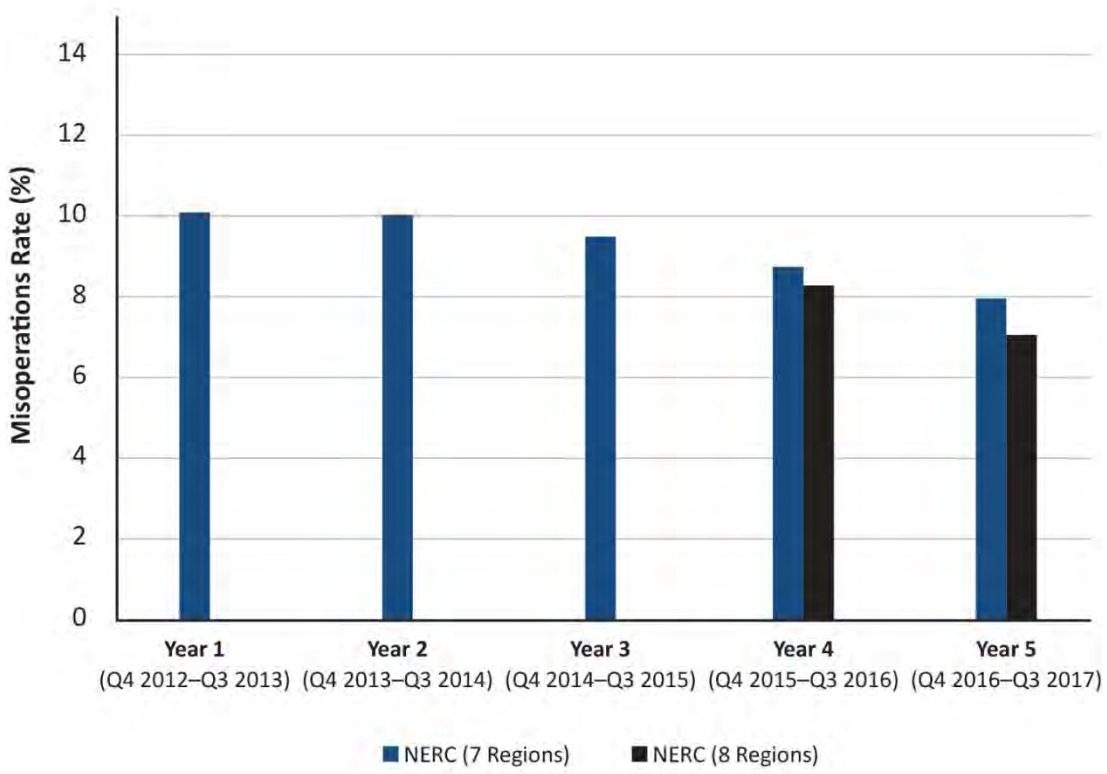



**Figure 3.7: Year-Over-Year Changes in NERC's Misoperation Rate**

Tests[46] on misoperation rates found the following statistically significant year-to-year changes:

- **NERC (Seven Regions):** decreases from Year 1 to Years 4 and 5, from Year 2 to Years 4 and 5, from Year 3 to Years 4 and 5, and from Year 4 to Year 5.
- **NERC (Eight Regions):** decrease from Year 4 to Year 5.

Table 3.2 lists the regional misoperation rates that are shown graphically in Figure 3.6 and Figure 3.7.

**Table 3.2: Misoperation Rate by Region and NERC by Year**

| Region | Year 1 (Q4 2012 through Q3 2013) | Year 2 (Q4 2013 through Q3 2014) | Year 3 (Q4 2014 through Q3 2015) | Year 4 (Q4 2015 through Q3 2016, Seven Regions) | Year 4 (Q4 2015 through Q3 2016, Last Two Quarters with WECC) | Year 5 (Q4 2016 through Q3 2017, Seven Regions) | Year 5 (Q4 2016 through Q3 2017, Eight Regions) |
|---|---|---|---|---|---|---|---|
| FRCC | 13.7% | 11.4% | 9.3% | 6.1% | 6.1% | 5.4% | 5.4% |
| MRO | 10.9% | 11.0% | 11.8% | 9.9% | 9.9% | 8.8% | 8.8% |
| NPCC (Q1 2013 to Q3 2017) | 7.6% | 7.1% | 6.6% | 8.0% | 8.0% | 7.2% | 7.2% |

[46] Large sample test on population proportions at the 0.05 significance level



AMERICAN OVERSIGHT
EXT-18-2615-C-000065

| Table 3.2: Misoperation Rate by Region and NERC by Year | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Region** | **Year 1 (Q4 2012 through Q3 2013)** | **Year 2 (Q4 2013 through Q3 2014)** | **Year 3 (Q4 2014 through Q3 2015)** | **Year 4 (Q4 2015 through Q3 2016, Seven Regions)** | **Year 4 (Q4 2015 through Q3 2016, Last Two Quarters with WECC)** | **Year 5 (Q4 2016 through Q3 2017, Seven Regions)** | **Year 5 (Q4 2016 through Q3 2017, Eight Regions)** |
| RF | 12.1% | 16.2% | 13.4% | 13.8% | 13.8% | 10.7% | 10.7% |
| SERC | 9.1% | 8.7% | 8.0% | 7.8% | 7.8% | 7.2% | 7.2% |
| SPP | 13.7% | 9.5% | 11.6% | 10.4% | 10.4% | 9.3% | 9.3% |
| Texas RE | 7.6% | 8.2% | 7.8% | 5.7% | 5.7% | 7.0% | 7.0% |
| WECC (Q2 2016 to Q3 2017) | | | | | 6.0% | | 4.6% |
| **NERC** | **10.2%** | **10.1%** | **9.5%** | **8.8%** | **8.3%** | **8.0%** | **7.1%** |

**Figure 3.8** shows the regional analysis for the aggregate of the top three causes of misoperations: Incorrect Settings/Logic/Design Errors, Relay Failures/Malfunctions, and Communication Failures over the five years. Tests[47] on misoperation rates, for the top three causes, were conducted to determine the statistically significant year-to-year changes. Red arrows signify increased rates and the other arrows signify decreased rates.

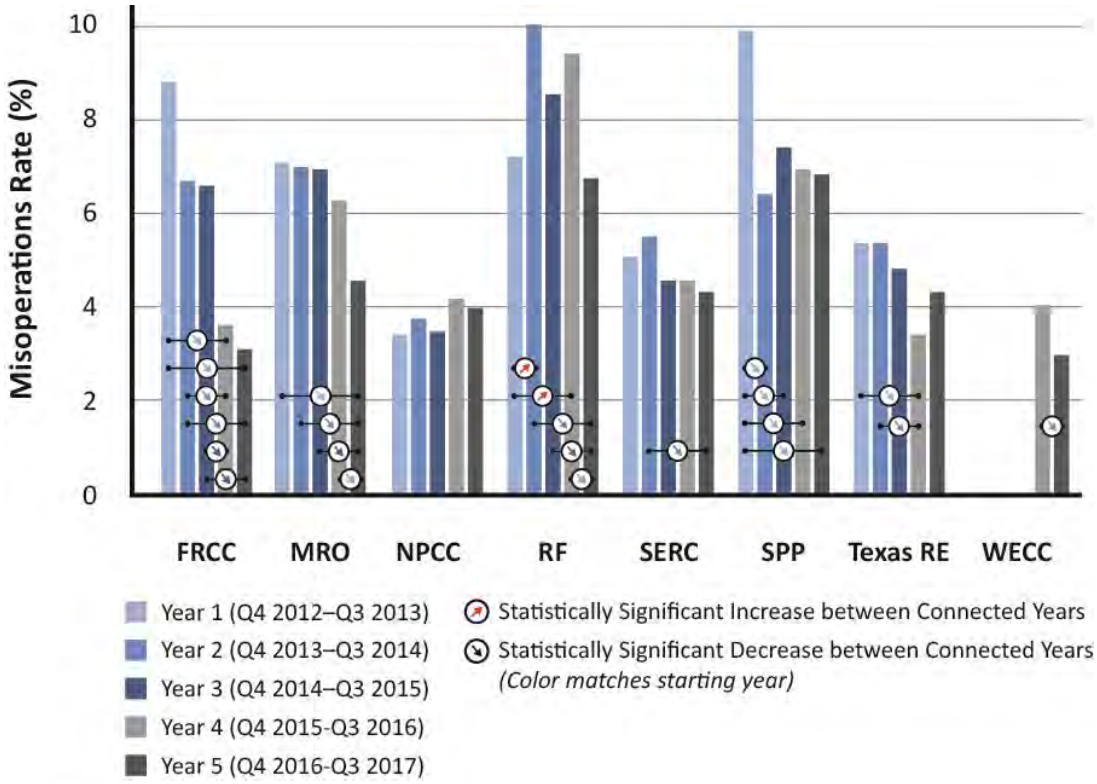



**Figure 3.8: Year-Over-Year Changes in Misoperation Rate for Top Three Causes Combined by Region**

[47] Large sample test on population proportions at the 0.05 significance level



AMERICAN OVERSIGHT
EXT-18-2615-C-000066

The annual changes in NERC's misoperation rate for the top three causes of misoperations combined are shown in Figure 3.9. For Years 4 and Year 5, the misoperation rate is calculated two ways: for seven Regions (excluding WECC) and for all eight Regions (WECC misoperation and operation counts included beginning Q2 of 2016).

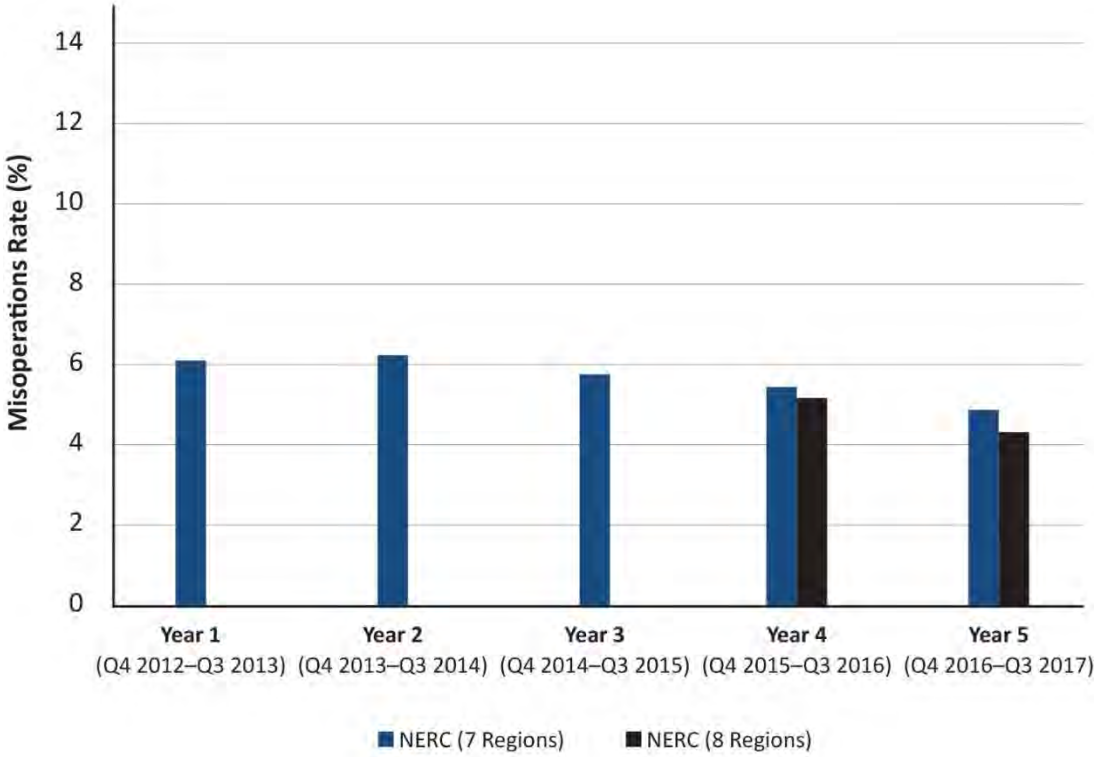



**Figure 3.9: Year-Over-Year Changes in NERC's Misoperation Rate for Top Three Causes Combined**

Tests[48] on misoperation rates found the following statistically significant year-to-year changes:

- **NERC (Seven Regions):** decreases from Year 1 to Years 4 and 5, from Year 2 to Years 4 and 5, from Year 3 to Years 4 and 5, and from Year 4 to Year 5.
- **NERC (Eight Regions):** decrease from Year 4 to Year 5.

## Actions to Address Misoperations

To increase awareness and transparency, NERC and the REs will continue to conduct industry webinars on protection systems and document success stories on how Generator Owners (GOs) and Transmission Owners (TOs) are achieving high levels of protection system performance. The quarterly protection system misoperation trends of NERC and the REs can be viewed on NERC's website.[49] Summaries of the REs' actions to address misoperations can be found in Appendix E.

NERC introduced the Misoperations Information Data Analysis System (MIDAS) in 2016, a data collection site for misoperations. In 2017, NERC replaced the data collection site with an application that allows the users to review, create, or update existing records with improved data validation and reporting through a secure portal integrated with NERC's ERO User Management System. NERC collaborates closely with the Regions to impart best practices and improve data collection.

[48] Large sample test on population proportions at the 0.05 significance level
[49] http://www.nerc.com/pa/RAPA/ri/Pages/ProtectionSystemMisoperations.aspx


AMERICAN OVERSIGHT
EXT-18-2615-C-000067

The ERO Enterprise determined from EA data and from industry expertise that a sustained focus on education regarding the instantaneous ground overcurrent protection function and on improving relay system commissioning tests were actionable and could have a significant effect. The relay ground function accounted for 11 misoperations in 2014, causing events that were analyzed due to voluntary entity reporting and cooperation. That was reduced to six event-related misoperations in 2015 and further reduced to one event-related operation in 2016. Similarly, one Region experienced a statistical improvement in relay misoperations from 2013–2014 and maintained this performance through 2016. This performance followed regional efforts that targeted a reduction of communication failures.

Based on the statistically significant increase in the total correct operation rate and the reduction in NERC's misoperation rate from 8.7 percent in 2016 to 8.0 percent in 2017, the performance trend for this metric is considered to be improving. Further statistical analysis can be found in **Appendix E**.

# M-12 through M-14 Automatic AC Transmission Outages

## Background

These metrics measure the impacts of Failed Protection System, Human Error, and Failed AC Substation Equipment respectively as factors in the performance of the ac transmission system. The metrics use the TADS data and definitions. The metrics were enhanced in 2014 and 2015 to be consistent with the collection of BES data in TADS, to align with the definition of the BES, and include some equipment to 100 kV.[50] With the revisions, the metrics include any BES ac transmission element outages that were initiated by the following:

- **M-12:** TADS ICC of Failed Protection System Equipment
- **M-13:** TADS ICC of Human Error
- **M-14:** TADS ICC of Failed AC Substation Equipment

Each metric is calculated for ac circuits and transformers separately in submetrics as follows:

- **Submetric 1:** The continued normalized count (on a per circuit basis) of 200 kV+ ac transmission element outages (i.e., TADS momentary and sustained automatic outages) that were initiated by Failed Protection System Equipment, Human Error, or Failed AC Substation Equipment.
- **Submetric 2:** Beginning January 1, 2015, the normalized count (on a per circuit basis) of 100 kV+ ac transmission element outages (i.e., TADS sustained automatic outages) that were initiated by Failed Protection System Equipment, Human Error, or Failed AC Substation Equipment.

## Assessment M-12 through M-14 AC Circuit Outages

Overall, the performance of M-12 through M-14 ac circuit outages is improving.[51] A five-year time trend for 2013–2017 is decreasing (improving) for all submetrics except M-13 Sub-metric 2 (Human Error), which is found to be inconsistent.

**Figure 3.10** presents changes for Sub-metric 1 of M-12 to M-14: the annual frequencies of automatic outages per 200 kV+ ac circuit for the time period 2013–2017. The green arrows indicate overall improving (i.e., decreasing) time trend for the five years determined from the statistical analysis as described below:

[50] The BES definition can be found at the following location: http://www.nerc.com/pa/RAPA/Pages/BES.aspx

[51] For the statistical assessments, the occurrences of automatic outages are assumed to follow the Poisson distribution (see R. Billinton and R. N. Allan. Reliability Evaluation of Power Systems. Second Edition. Plenum Press, New York, 1996, and references therein).

AMERICAN OVERSIGHT



EXT-18-2615-C-000068

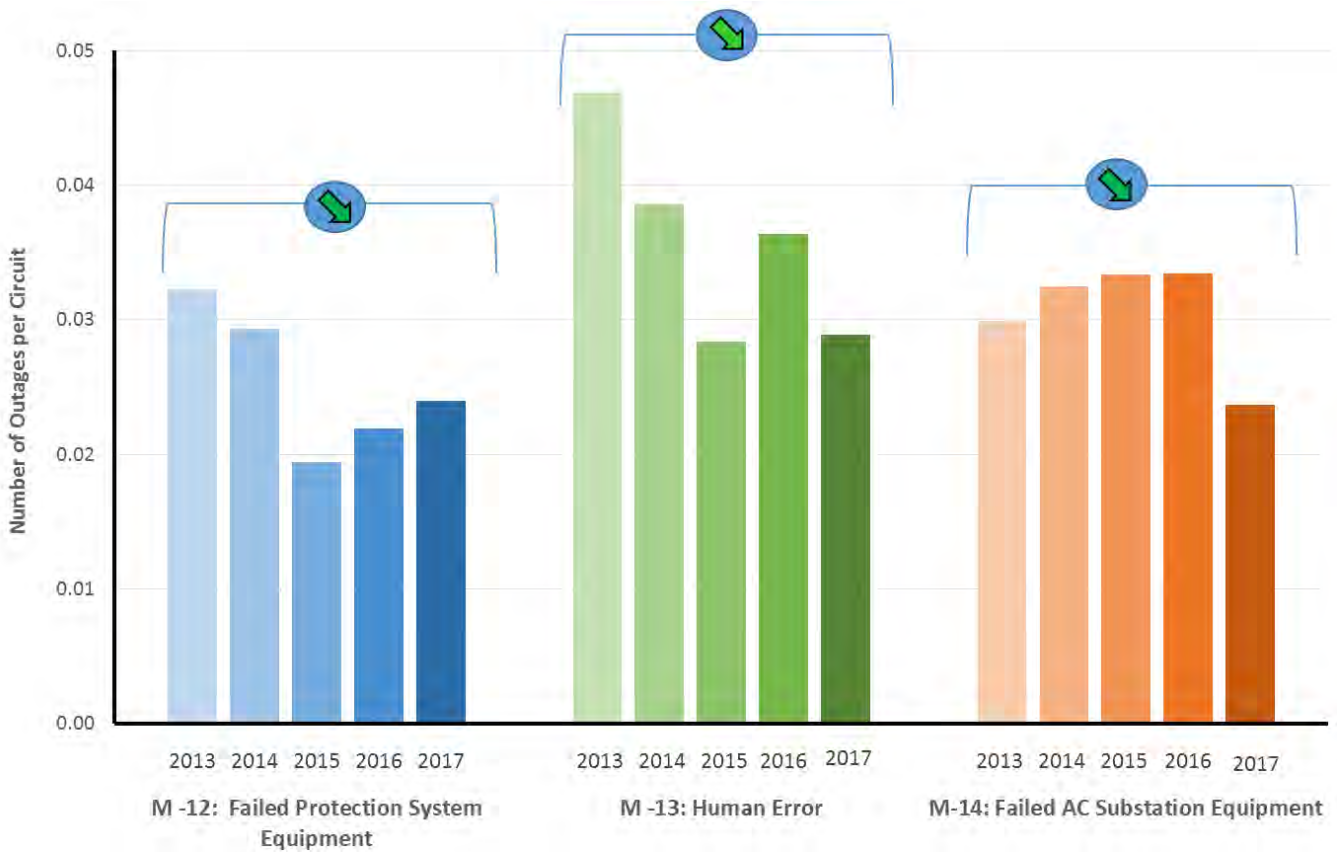



**Figure 3.10: 200 kV+ AC Circuit Outages Initiated by Failed Protection System Equipment, Human Error, and Failed AC Substation Equipment (M-12 through M-14, Sub-Metric 1)**

The calculated annual outage frequencies, per ac circuit, were tested to identify significant year-to-year changes of the reliability metric. Below is a summary of Submetric 1 performance for the five years:

- **M-12:** Failed Protection System Equipment initiated outages:
  - There was no statistically significant decrease from 2014–2015.
  - There were no significant changes from 2013–2014, from 2015–2016, or from 2016–2017.
  - The 2017 outage frequency is significantly lower than in 2013 and 2014 and not statistically significantly higher than in 2015 and 2016.
- **M-13:** Human Error initiated outages:
  - There was a year-to-year decrease with no statistically significant change from 2013–2014.
  - There were statistically significant decreases from 2014–2015 and from 2016–2017.
  - There was a statistically significant increase from 2015–2016.
  - The 2017 outage frequency is significantly lower than in 2013, 2014, and 2016 and statistically similar to 2015.
- **M-14:** Failed AC Substation Equipment initiated outages:
  - There were no statistically significant changes from 2013–2014, from 2014–2015, or from 2015–2016.
  - There was a statistically significant decrease from 2016–2017.

AMERICAN OVERSIGHT

EXT-18-2615-C-000069

- The 2017 outage frequency is significantly lower than in each year from 2013–2016.

**Figure 3.11** presents changes for Submetric 2 of M-12 to M-14: the annual frequencies of sustained automatic outages per 100 kV+ ac circuit for the time period 2015–2017. The green arrows indicate overall improving (i.e., decreasing) time trend for the three years determined from the statistical analysis as described below. No arrow indicates an inconsistent time trend.

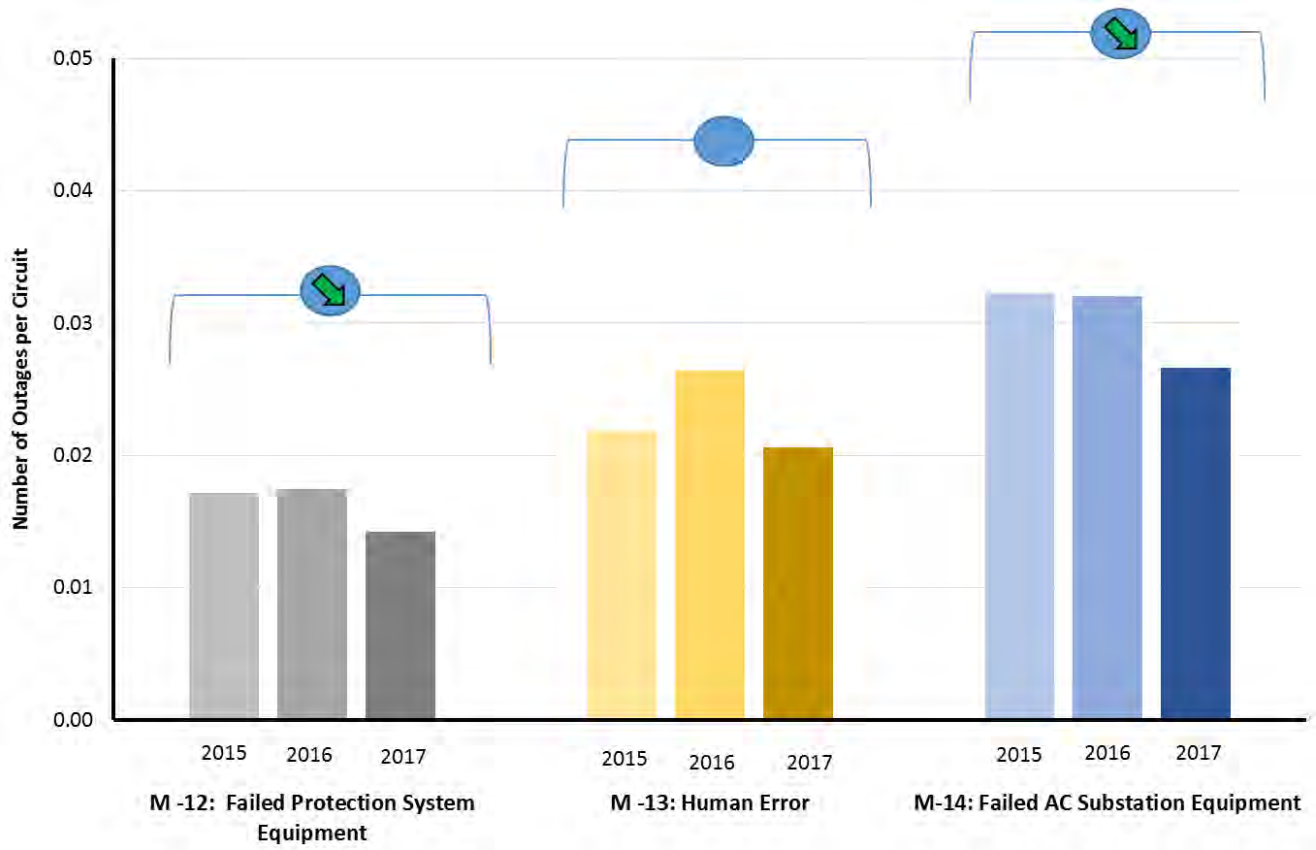



**Figure 3.11: 100 kV+ AC Circuit Outages Initiated by Failed Protection System Equipment, Human Error, and Failed AC Substation Equipment (M-12 through M-14, Sub-Metric 2)**

The calculated annual outage frequencies per ac circuit were tested to identify significant year-to-year changes of the reliability metric. Below is a summary of Submetric 2 performance for the three years:

- **M-12:** Failed Protection System Equipment initiated outages:
  - There was no significant changes from 2015–2016.
  - The 2017 outage frequency is significantly lower than in 2015–2016.
- **M-13:** Human Error initiated outages:
  - There was a statistically significant increase from 2015–2016.
  - There was a statistically significant decrease from 2016–2017.
  - The 2017 outage frequency is significantly lower than in 2016 and statistically similar to 2015.
- M-14: Failed AC Substation Equipment initiated outages:
  - There was no significant change from 2015–2016.

AMERICAN OVERSIGHT

EXT-18-2615-C-000070

- There was a statistically significant decrease from 2016–2017.
- The 2017 outage frequency is significantly lower than in 2015–2016.

## Assessment M-12 through M-14 Transformer Outages

Overall, the performance of M-12 through M-14 transformer outages is improving. A five-year time trend for 2013–2017 is decreasing (improving) for all submetrics except M-12 Submetric 2 (Failed Protection System Equipment) with no changes in performance.

Figure 3.12 presents changes for Submetric 1 of M-12 to M-14: the annual frequencies of automatic outages per 200 kV+ transformers for the time period 2013–2017. The green arrows indicate overall improving (i.e., decreasing) time trend for the five years determined from the statistical analysis as described below.

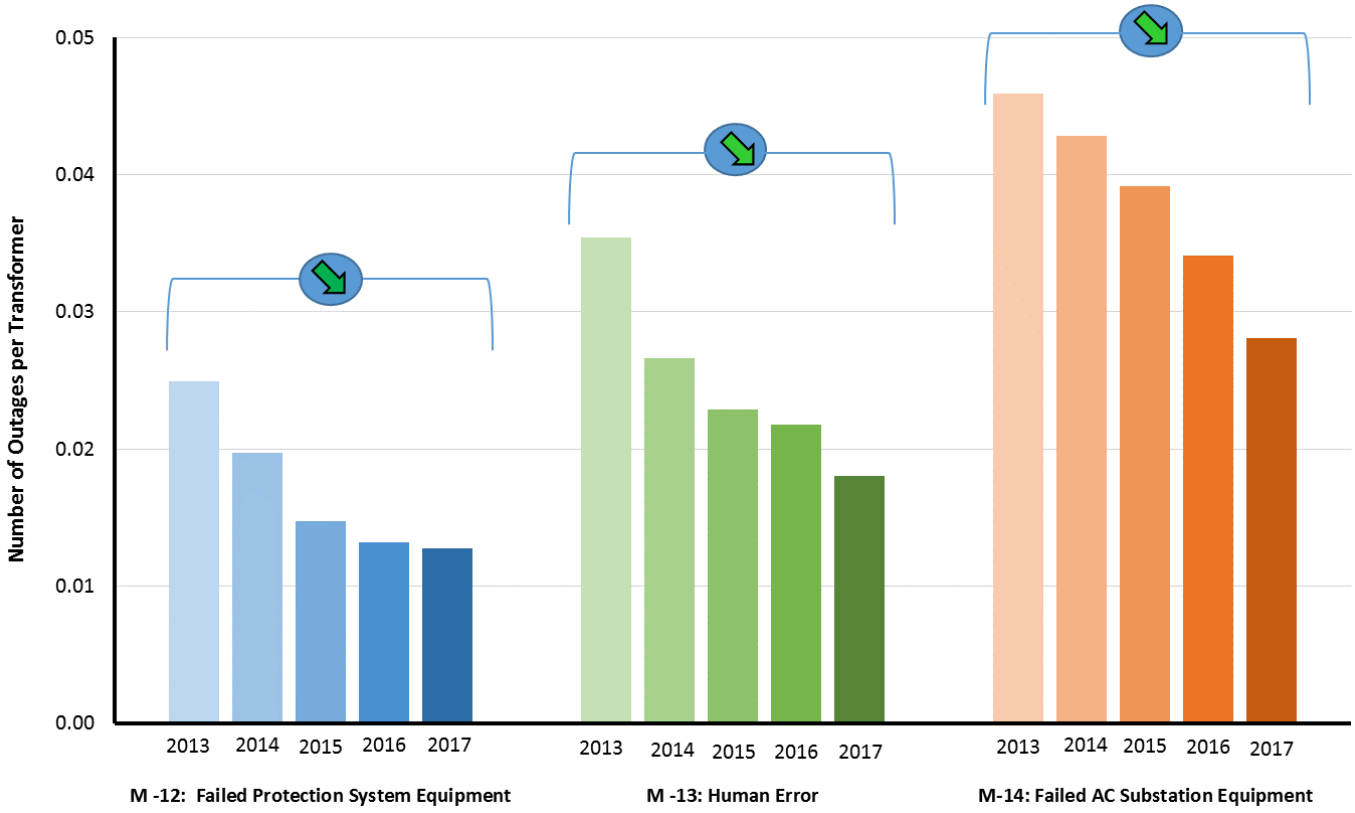



**Figure 3.12: 200 kV+ Transformer Outages Initiated by Failed Protection System Equipment, Human Error, and Failed AC Substation Equipment (M-12 through M-14, Sub-Metric 1)**

The calculated annual outage frequencies, per transformer, were tested to identify significant year-to-year changes of the reliability metric. Below is a summary of Submetric 1 performance for the five years:

- **M-12:** Failed Protection System Equipment initiated outages:
  - There were year-to-year decreases from 2013–2016 with no statistically significant changes for any pair of consecutive years.
  - There was no change from 2016–2017.
  - The 2017 outage frequency is significantly lower than in 2013 and statistically similar to 2015–2016.
- **M-13:** Human Error initiated outages:

AMERICAN OVERSIGHT



EXT-18-2615-C-000071

- There were annual decreases from 2013–2017.
- There was a statistically significant decrease from 2013–2015.
- The 2017 outage frequency is lower than in each year from 2013–2016 and statistically significantly lower than in 2013 and 2014.

- **M-14:** Failed AC Substation Equipment initiated outages:
  - There were year-to-year decreases from 2013–2017 with no significant changes between any two consecutive years.
  - The 2017 outage frequency is lower than in any other year and statistically significantly lower than in 2013–2015.

**Figure 3.13** presents changes for Submetric 2 of M-12 to M-14: the annual frequencies of sustained automatic outages per 100 kV+ transformer for the time period 2015–2017. The green arrows indicate overall improving (i.e., decreasing) time trend for the three years determined from the statistical analysis as described below. A white arrow indicates no change in performance for the three years.

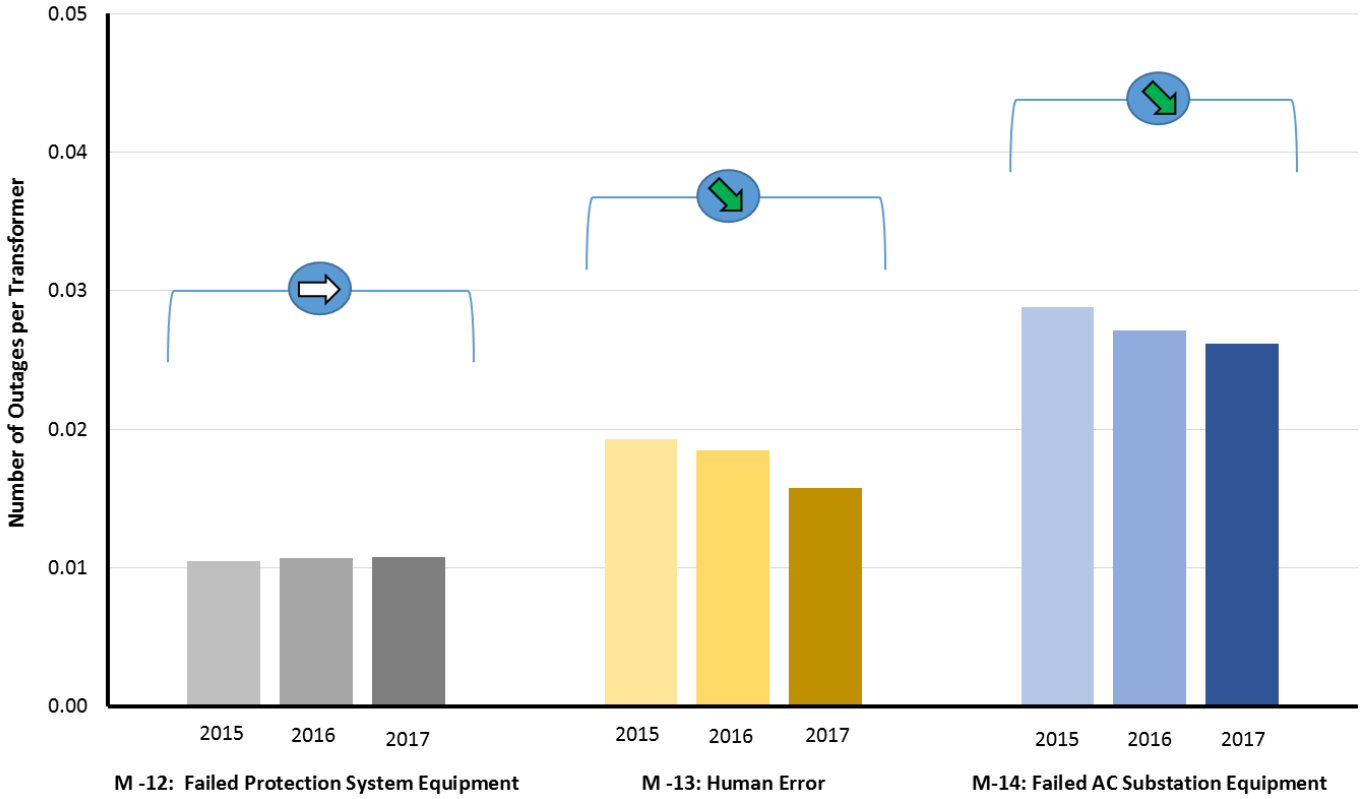



**Figure 3.13: 100 kV+ Transformer Outages Initiated by Failed Protection System Equipment, Human Error, and Failed AC Substation Equipment (M-12 through M-14, Sub-Metric 2)**

The calculated annual outage frequencies per transformer were tested to identify significant year-to-year changes of the reliability metric. Below is a summary of Submetric 2 performance for the three years:

- **M-12:** Failed Protection System Equipment initiated outages:
  - There were no significant changes by year.

AMERICAN OVERSIGHT



EXT-18-2615-C-000072

- **M-13:** Human Error initiated outages:
  - There was a decrease from 2015–2016 and from 2016–2017.
  - There were no significant changes by year.
  - The 2017 outage frequency is lower than in 2015–2016.
- **M-14:** Failed AC Substation Equipment initiated outages:
  - There was a decrease from 2015–2016 and from 2016–2017.
  - There were no significant changes by year.
  - The 2017 outage frequency is lower than in 2015–2016.

# M-15 Automatic AC Transmission Outages Initiated by Failed AC Circuit Equipment

## Background

This metric measures the impact of Failed AC Circuit Equipment as one of many factors in the performance of ac transmission systems. Metric M-15 follows the same methodology described for M-12 through M-14 except that it uses a normalization based on a line length and is defined for ac circuits only. As with M-12 through M-14, the sub-metrics are calculated as follows:

- **Submetric 1:** The continued normalized count (on a per 100 circuit-mile basis) of 200 kV+ ac transmission circuit outages (i.e., TADS momentary and sustained automatic outages) initiated by Failed AC Circuit Equipment
- **Submetric 2:** Beginning January 1, 2015, the normalized count (on a 100 per circuit-mile basis) of 100 kV+ ac transmission circuit outages (i.e., TADS sustained automatic outages) initiated by Failed AC Circuit Equipment

## Assessment

M-15 performance was inconsistent for both submetrics as demonstrated in **Figure 3.14** and **Figure 3.15**. The observed changes in the calculated frequencies cannot be statistically analyzed due to a mile-based normalization (these numbers do not represent observations in a statistical sample) and can be only compared numerically.

**Figure 3.14** shows changes in M-15 Submetric 1, the annual frequency of automatic outages per hundred miles for ac circuits of 200 kV+ for the time period 2013–2017.

AMERICAN OVERSIGHT



EXT-18-2615-C-000073

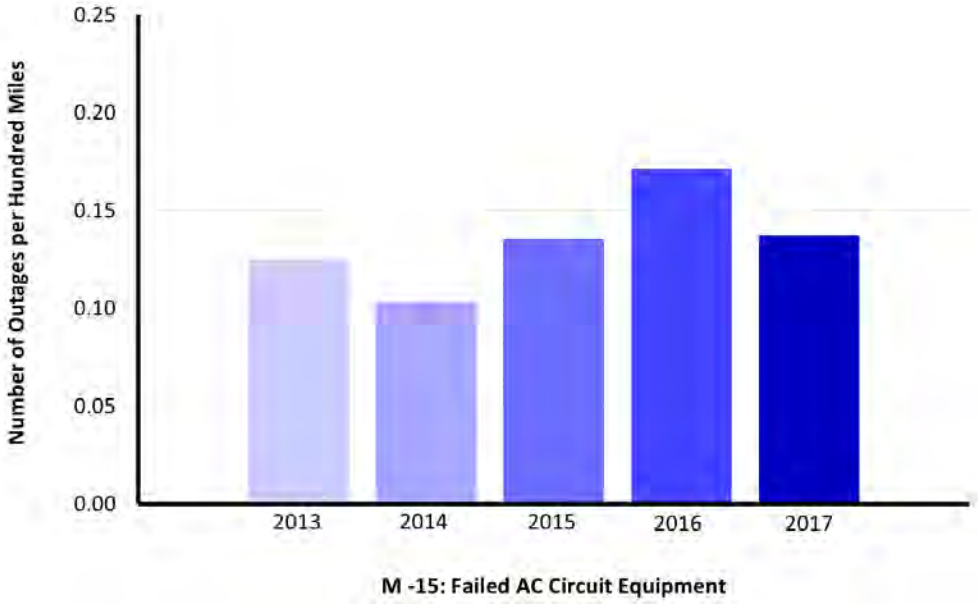



**Figure 3.14: 200 kV+ AC Circuit Outages Initiated by Failed AC Circuit Equipment (M-15)**

Figure 3.15 shows changes in M-15 Submetric 2, the annual frequency of sustained automatic outages per hundred miles for ac circuits of 100 kV+ for the time period 2015–2017.

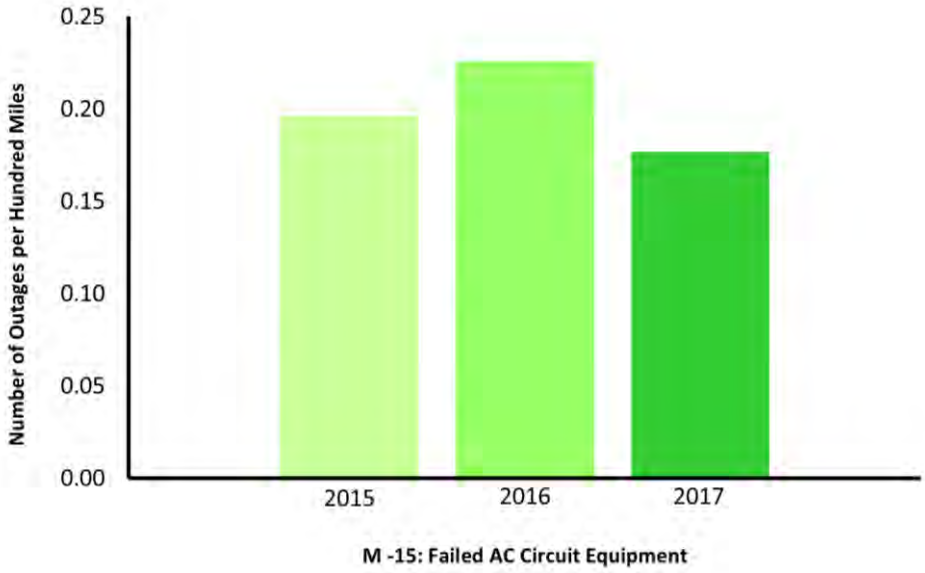



**Figure 3.15: 100 kV+ AC Circuit Outages Initiated by Failed AC Circuit Equipment (M-15)**



AMERICAN OVERSIGHT
EXT-18-2615-C-000074

# M-16 Element Availability Percentage and Unavailability Percentage

## Background

The availability percentage and unavailability percentage metric determines the percentage of BES ac transmission elements that are available or unavailable when outages due to automatic and non-automatic events are considered.

Originally, there were two metrics: one to calculate availability and one to calculate unavailability. These were combined into one metric in 2013. This metric continues to focus on availability of elements at 200 kV+ because non-automatic (operational) outages, included in the calculation of unavailability, are not collected for TADS elements below 200 kV. Therefore, the reporting voltage levels for this metric did not change.

## Assessment

The performance trend of M-16 for ac circuits is steady (all year-to-year changes are below 0.1 percent), and the trend is found to be improving for transformers.

For both transmission element types (ac circuits and transformers) only charts for unavailability are shown because annual unavailability can be broken down by outage type (unlike availability). A part of unavailability due to planned outages cannot be calculated due to the 2015 changes in TADS data collection and is nether shown nor analyzed.

**Figure 3.16** presents 200 kV+ ac circuit unavailability as a percentage for the time period 2013–2017.

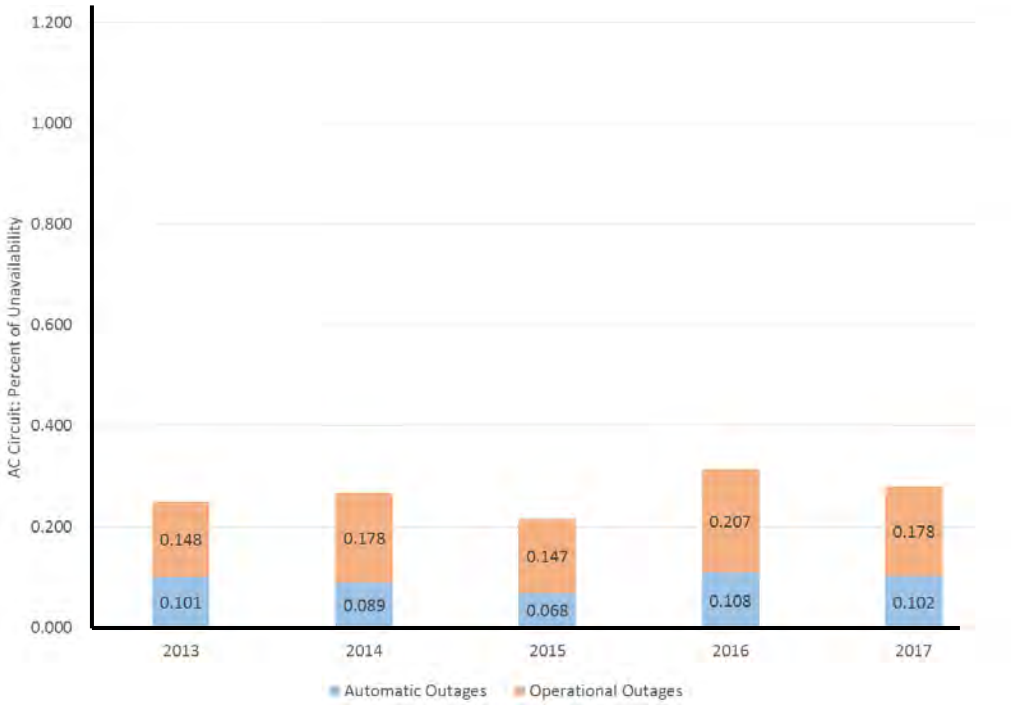



**Figure 3.16: 200 kV+ AC Circuit Unavailability by Year and Outage Type**

The 2017 ac circuit combined unavailability due to operational and automatic outages was the second largest from 2013–2017. Overall, over the five years, the ac circuit unavailability remained steady with range of changes at 0.1 percent (between 0.22 percent in 2015 and 0.32 in 2016).

**Figure 3.17** presents 200 kV+ TADS transformer unavailability as a percentage for the time period 2013–2017.

AMERICAN OVERSIGHT



EXT-18-2615-C-000075

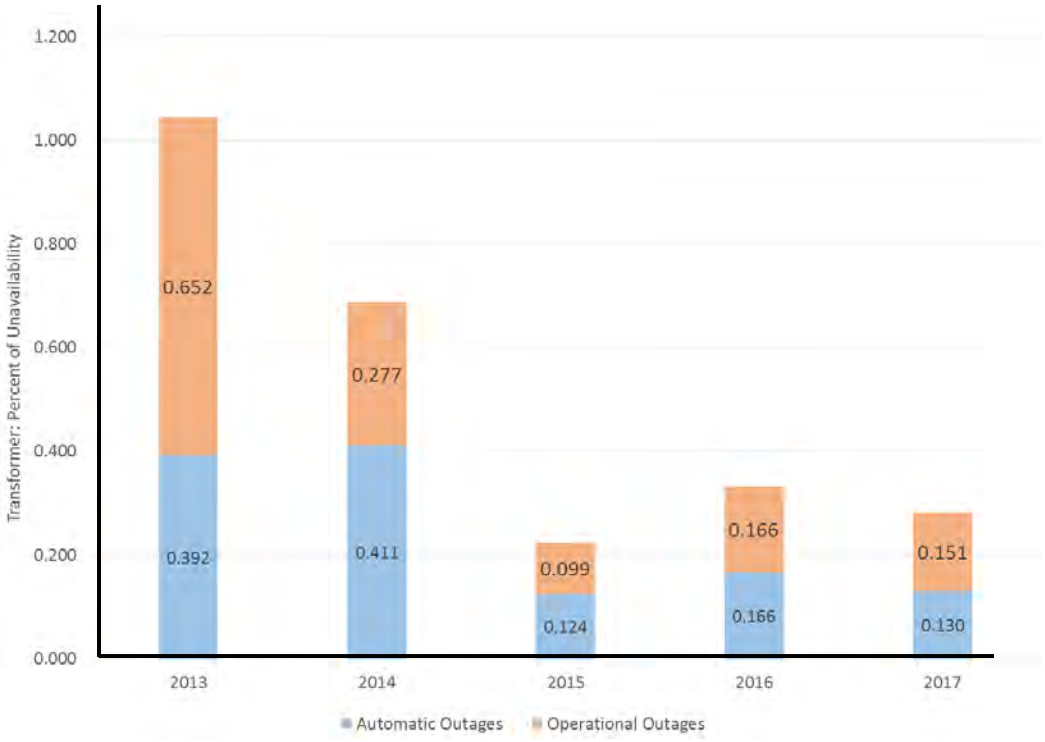



**Figure 3.17: 200 kV+ Transformer Unavailability by Year and Outage Type**

Transformer unavailability due to operational and automatic outages in 2017 was the second lowest from 2013 to 2017 with an overall improving trend from 2013–2017. It is worth noting that a sizable change in transformer inventory occurred in 2015 due to changes in TADS reporting and that additional year-over-year data will help to confirm the observed improving trend.

AMERICAN OVERSIGHT



EXT-18-2615-C-000076

# Chapter 4: Enforcement Metrics for Risk and Reliability Impact

This chapter provides compliance-based metric results for 2017 by using data through the end of March 2018. The *ERO Enterprise Compliance Monitoring and Enforcement Program Annual Report*[52] *(CMEP 2017)* is the authoritative source document for this data and supplies this information with full background narrative and graphics. The annual enforcement document refers to Serious Risk Violations and Noncompliance with Impact. For purposes of this report, they are referred to as Compliance Process 1 and Compliance Process 2 metrics, respectively. These track compliance violation risk and compliance violation impact.

Analysis reveals a decreasing trend in the 12-month rolling average of Compliance Process 1 serious risk violations from 2012 through the end of 2018, Q1. However, it is important to remember that there is time required to fully understand serious risk violations and reach disposition, which may include the filing of a full notice of penalty. In the future, there may be additional serious risk violations added to the count of this metric as reported violations are fully analyzed and reach disposition.

Analysis of violations with impact Compliance Process 2 finds that the rate for the same time period remains constant at a relatively low level. Again, as not all reported noncompliances have reached final disposition, this metric also remains subject to change.

As with many BPS reliability issues, annual analysis of enforcement metrics has sometimes highlighted HP as a key issue. The *CMEP 2016*[53] report targeted this with additional analysis.[54] HP analysis was not repeated for *CMEP 2017*, but determination of underlying root causes for HP issues[55] is always emphasized during analysis of individual violations.

[52] See https://www.nerc.com/pa/comp/Reports%20DL/2017%20NERC%20Compliance%20Monitoring%20Enforcement%20Program.pdf for the 2017 edition.

[53] https://www.nerc.com/pa/comp/Reports%20DL/2016%20NERC%20Compliance%20Monitoring%20Enforcement%20Program.pdf

[54] http://www.nerc.com/pa/comp/CE/Compliance%20Violation%20Statistics/Analysis%20of%20Serious%20Risk%20Violations%20with%20an%20Impact.pdf

[55] HP emerges as an issue in multiple aspects of BPS performance. NERC and NATF jointly conduct the annual Improving Human Performance on the Grid conference in Atlanta in late March, and Regions and various industry groups also conduct high quality HP conferences and training to address this need.



AMERICAN OVERSIGHT
EXT-18-2615-C-000077

# Chapter 5: Event Analysis

This chapter focuses on three significant outcomes from event analysis in 2017: reliability and resiliency aspects of two hurricanes (Harvey and Irma), an update on inverter-based resource performance, and the solar eclipse. **Appendix G** highlights other significant events analysis activity and provides details on, for example, the 179 events in 2017 that analysis confirmed to be low level Category 1.

Each of the hurricanes comprised a NERC Category 5 event, the highest severity within the EA Process[56], which should not be confused with their Category 4 Hurricane classifications.[57] Harvey evokes perhaps the surprising description by some as a "water event" rather than a "wind event," not necessarily a distinction expected to be drawn for a hurricane. It presented unexpected challenges to service restoration and required restoration and recovery techniques that were never used before in the Houston area. Irma highlights resiliency impacts that can be achieved by hardening the system before challenges arise. For example, customer electric outages for FP&L exceeded those of its highest number for a prior hurricane by greater than 1.2 million (4.454 million versus 3.241 million), yet it accomplished restoration in 10 days as opposed to 18 days for the prior storm.[58] One key finding from these events was the importance of deploying drones as an effective way to identify field conditions and required restoration activities.

This chapter also updates the *State of Reliability 2017* risk resulting from unexpected and undesired inverter performance. The risk is the loss of significant amounts of generation during certain system conditions when BPS reliability may depend on their output. Collaborative regulatory and industry actions proved successful in 2017 to address trips due to inappropriate frequency calculations. However, a subsequent incident occurred, revealing new risks regarding cessation of current injection into the system for specific voltage rather than frequency excursions. A team is developing mitigation approaches for these and any other emergent issues.

Pertaining to the total solar eclipse of 2017, effective mitigation plans prevented it from threatening reliability of the BPS and ensured that it unfolded as a non-event.

## Weather (Hurricanes—Wind and Water Events)

### Hurricane Harvey

Hurricanes typically evoke thoughts of damaging winds and water with neither predominant and the size of the storm surge at the forefront of any discussion of flooding. Hurricane Harvey[59] broke that pattern. Although Harvey made landfall on the Texas coast as a Category 4 Hurricane, one weather media authority's website first highlights that, "Harvey was a catastrophic flood disaster in southeast Texas"[60] and only later mentions its 130 mph winds. It is clear that a key characteristic that should be emphasized about any hurricane is whether it was a typical wind and water event or primarily one over the other. The delineation is vital to understanding restoration and recovery challenges and performance: Harvey comprised a water and wind event on the Texas coast with a record breaking storm surge and developed into a water event further inland, particularly for the Houston area.[61] The storm inflicted massive

[56] The EA Process can be found at the following location: https://www.nerc.com/pa/rrm/ea/Pages/EA-Program.aspx
[57] The NOAA hurricane classifications can be found at the following location: https://www.nhc.noaa.gov/aboutsshws.php
[58] FP&L's Grid Hardening and Hurricane Response can be found at the following location: https://www.energy.gov/sites/prod/files/2018/02/f49/2_Emergency%20Response%20and%20Resilience%20Panel%20-%20Tom%20Gwaltney%2C%20FPL.pdf (See slide 4.)
[59] The August 2017 *Hurricane Harvey Event Analysis Report* can be found at the following location: https://www.nerc.com/pa/rrm/ea/Pages/August-2017-Hurricane-Harvey-Event-Analysis-Report.aspx
[60] A recap of Hurricane Harvey can be found at the following location: https://weather.com/storms/hurricane/news/tropical-storm-harvey-forecast-texas-louisiana-arkansas
[61] The Hurricane Harvey Response and Restoration presentation can be found at the following location: https://www.energy.gov/sites/prod/files/2018/02/f49/2_Emergency%20Response%20and%20Resilience%20Panel%20-%20Steve%20Greenley%2C%20CenterPoint%20Energy.pdf (See slide 5.)


AMERICAN OVERSIGHT
EXT-18-2615-C-000078

disruptions on the electric power system in the Corpus Christi, Houston/Galveston, and Beaumont/Port Arthur areas; damaging 85 substations, over 850 transmission line structures, and over 6,000 distribution poles. It caused 225 transmission line outages until it stalled and degraded into a tropical storm, causing excessive rain (40–50 inches) in parts of southeastern Texas and flooding large areas of Houston and inland as far as Austin.

Following a hurricane, utility and contract restoration crews normally provide rapid response to damaged areas, but following Harvey, unanticipated continued flooding did not allow access into many areas. For example, the water continued to rise in the greater Houston area as the massive inland rainfall flowed toward the Gulf of Mexico. The extensive and extended presence of flooding and storm debris challenged the recovery process. Utilities met the challenges in novel ways for some areas while relying on mutual assistance agreements. A staple of Florida and Texas coastal restorations, airboats arrived for the first time in the Houston area to aid in assessing damage in its flooded areas. Amphibious vehicles proved quite valuable also.

However, drones provided the greatest versatility. Utilities mobilized drones, some of which mutual assistance agreements supplied, to perform damage assessments on inaccessible substations as well as transmission and distribution lines. The drones used infrared capability to identify which equipment needed further inspection and which could be trusted without it. Drones greatly accelerated and enhanced real-time situational awareness and assessments using their information enabled efficient dispatch of restoration crews to accessible locations. Drones later proved a notable resiliency asset following Hurricane Irma, and the unusual flooding following Harvey emphasized the range of challenges for which they provide exceptional value. CenterPoint alone used 15 drones to track 500 locations in its electrical system following Harvey. As a natural gas and electric utility, CenterPoint responded to 8,246 natural gas emergency orders and performed 1.27 million total electric restorations for Harvey. As a final note on drone versatility, one method, among several, that CenterPoint used in response to the breach of an 18 inch natural gas pipeline under the Neches River was to mount a remote methane leak detector to a drone to monitor resultant river methane levels.

Texas RE and FRCC are leading the development with NERC of a lessons learned document to provide insights into how drones might be even more effectively used in future restorations, including identification of policies and regulations that might change.[62] Close coordination with government agencies and first responders is critical for successful drone use. The document is expected to publish in 2018.

## Hurricane Irma

Hurricane Irma's impacts on Florida present a case study in resilience. Following the 2005 hurricane season (which included Hurricane Wilma), the Florida Legislature, Florida Public Service Commission (FPSC), and state utilities, including FP&L, first explored and then implemented a very deliberate hardening of the state electrical infrastructure.[63] Irma gave FP&L the opportunity to prove the worth of the 1.5 billion dollars it invested in strengthening its transmission and distribution system in preparation for the next big storm with FPSC approval.

Irma caused more electric outages than any prior storm. In its immediate aftermath, it caused an estimated 8.96 million customers in five states, Puerto Rico, and the U.S. Virgin Islands to lose electric service at some point, compared with Superstorm Sandy's 8.66 million customers in 2012.[64] In FP&L's service territory alone, 4.45 million

[62] TOs and TOPs make the case that their use increases reliability and resiliency even for routine inspections outside of emergency operations.
[63] https://www.energy.gov/sites/prod/files/2017/01/f34/Evaluating%20Proposed%20Investments%20in%20Power%20System%20Reliability%20and%20Resilience%20Preliminary%20Results%20from%20Interviews%20with%20Public%20Utility%20Commission%20Staff.pdf. See **Appendix E** for information on the State of Florida's hurricane preparation and response.
[64] Information regarding power outages during Hurricane Irma can be found at the following location: https://blog.ucsusa.org/julie-mcnamara/hurricane-irma-power-outage


AMERICAN OVERSIGHT
EXT-18-2615-C-000079

customers lost power, contrasted with the previous high of 3.24 million during Hurricane Wilma. Importantly though, the utility evidenced increased resiliency as it cut total restoration time from 18 days for Wilma to 10 days for Irma.[65]

## Inverter-Based Generation Update

*State of Reliability 2017* reported that an unplanned loss of approximately 1,200 MW of solar inverter-based resources occurred in August 2016 in the WI. A joint NERC/WECC task force analyzed that event and produced a report,[66] resulting in a NERC alert Level 2: recommendation to industry issued on June 20, 2017. The analysis revealed two major issues with solar PV inverter-based resources. First, a specific manufacturer's inverters were susceptible to erroneous frequency tripping during transmission faults. The manufacturer devised a solution, and the recommendation advised registered entities to contact the inverter manufacturer and implement the changes. Second, manufacturers' inverters employ an operating characteristic in general during abnormal grid voltages referred to as momentary cessation. During cessation, the inverter ceases to inject current into or draw current from the grid. The recommendation advised registered entities with inverters that they must use momentary cessation during abnormal voltages to configure them to restore output after no greater delay than five seconds from the initiation of cessation.

The analysis identified the need for further studies to determine impacts of momentary cessation on reliability as well as other inverter issues that impact the stability of the Interconnections. The NERC OC and PC created a joint task force, the IRPTF in June 2017, to perform that work. The task force is producing a guideline for inverter-based resource performance to support BPS reliability.[67]

Another incident occurred in the WI in October 2017. The NERC report[68] on that disturbance was published in February 2018, and it revealed new inverter-based resource performance issues that are being addressed with a follow up to the first alert: Recommendation to Industry (Loss of Solar Resources during Transmission Disturbances – II).[69] This Recommendation advises entities to do the following:

- Ensure inverters will not trip on transient overvoltage (specific thresholds and guidance are under development).
- Eliminate inverter use of momentary cessation if possible.
- Inject reactive current as necessary to mitigate cases of low voltage.
- In cases for which momentary cessation cannot be eliminated do the following:
  - Reduce the momentary cessation low voltage threshold to the lowest value possible.
  - Reduce the recovery delay to the smallest time period possible.
  - Increase the active power ramp rate to at least 100 percent per second (i.e., return to pre-disturbance active current injection within one second).

[65] A comparison of Hurricane Irma to historical storms can be found at the following location: https://www.energy.gov/sites/prod/files/2018/02/f49/2_Emergency%20Response%20and%20Resilience%20Panel%20-%20Tom%20Gwaltney%2C%20FPL.pdf (See slide 4)

[66] The *1,200 MW Fault Induced Solar Photovoltaic Resource Interruption Disturbance* report can be found at the following location: https://www.nerc.com/pa/rrm/ea/1200_MW_Fault_Induced_Solar_Photovoltaic_Resource_/1200_MW_Fault_Induced_Solar_Photovoltaic_Resource_Interruption_Final.pdf.

[67] The IRPTF can be found at the following location: https://www.nerc.com/comm/PC/Pages/Inverter-Based-Resource-Performance-Task-Force.aspx

[68] The *900 MW Fault Induced Solar Photovoltaic Resource Interruption Disturbance* report can be found at the following location: https://www.nerc.com/pa/rrm/ea/Pages/October-9-2017-Canyon-2-Fire-Disturbance-Report.aspx.

[69] The alert can be found at the following location: https://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/NERC_Alert_Loss_of_Solar_Resources_during_Transmission_Disturbance-II_2018.pdf

AMERICAN OVERSIGHT



EXT-18-2615-C-000080

- Coordinate facility and inverter controls to not impede restoration from momentary cessation.

## Solar Eclipse

While most of the United States awaited the total eclipse of the sun on August 21, 2017, the electric industry implemented measures to ensure it would not cause electrical outages due to the sudden loss of solar resources. In anticipation of this event, NERC produced a white paper[70] in April 2017 that indicated there would be no projected impacts to the BPS while the industry similarly anticipated that this event would not cause problems. Industry did plan for reduction in solar resources during the event and no issues developed. Entities, including PJM[71] and CAISO,[72] took this opportunity to compare results of the actual event with their study projections.

Adverse weather and inverter performance challenged BPS reliability in 2017, but the weather provided evidence of increased BPS resilience and pointed to potential improvements for future restorations. The inverter issues are driving greater collaborative understanding and improved inverter compatibility with the BPS. Key Findings 1 and 2 and associated recommendations in the **Executive Summary** derive from these events.

[70] The white paper can be found at the following location: http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/Solar_Eclipse_2017_Final_4-25-17.pdf

[71] The PJM Solar Output During August 21, 2017 Total Solar Eclipse can be found at the following location: https://www.pjm.com/-/media/committees-groups/committees/oc/20170912/20170912-item-15-oc-eclipse-updated-20170831.ashx

[72] The CAISO Performance of ISOs System during August 21, 2017 Eclipse can be found at the following location: https://www.caiso.com/Documents/Performance-ISOSystemsDuringSolarEclipse.pdf

AMERICAN OVERSIGHT



EXT-18-2615-C-000081

# Chapter 6: BES Security Measures

This chapter provides cyber and physical security performance metrics. It further presents metrics on data sharing and a metric on global cyber vulnerabilities. Each metric is followed by contextual information to aid in understanding and application. All information presented resides in the public domain.

The E-ISAC and Security Metrics Working Group—formerly the Bulk Electric System Security Metrics Working Group—have reviewed the metrics and identified trends where possible, recognizing that these results are based on only three years of data. The metrics provide a global and industry-level view of how security risks are evolving and indicate the extent to which the electricity industry is successfully managing these risks. This chapter also provides an overview of a roadmap prepared by the SMWG for the development of additional security metrics in future.

A word of caution: NERC and the E-ISAC consistently maintain accurate public data, which is supported by the E-ISAC's access to protected, confidential data. Other external data sources outside the control of the E-ISAC or NERC to which NERC and the E-ISAC's public data may be compared could be based upon less rigorous data collection by third parties; therefore, direct and quantitative comparisons of the data presented in this report to such third party external data sources may not be complete.

## Cyber Security

### Security Metric: Reportable Cyber Security Incidents

No reportable cyber security incidents[73] occurred in the last three years, so therefore there are none that caused a loss of load. This does not suggest that the risk of a cyber security incident is low as the number of cyber security vulnerabilities continues to increase (see **Security Metric: Global Cyber Vulnerabilities**). Additional observed and potential risks are detailed in the E-ISAC cyber security data and findings available to those with access to the E-ISAC portal.[74]

Responsible entities must report cyber security incidents to the E-ISAC as required by the NERC Reliability Standard CIP-008-5 Incident Reporting and Response Planning.[75] This metric reports the total number of reportable cyber security incidents that occur over time and identifies how many of these incidents have resulted in a loss of load. It is important to note that any loss of load, whether directly caused by an adversary or intentionally shed as part of the real-time response, will meet the threshold for inclusion in this metric. For example, if load was shed as a result of a loss of situational awareness caused by a cyber incident affecting an entity's energy management system, the incident would be counted even though the cyber incident did not directly cause the loss of load. This metric provides the number of reportable cyber security incidents and an indication of the resilience of the BES to operate reliably and continue to serve load.

## Recent Cyber Security Developments

### Notice of Proposed Rulemaking

In December 2017, the Federal Energy Regulatory Commission (FERC) issued a notice of proposed rulemaking to direct NERC to broaden CIP-008 to include mandatory reporting of cyber security incidents that compromise, or attempt to compromise, an entity's Electronic Security Perimeter or associated Electronic Access Control or

[73] Ref. NERC Glossary of Terms: "A Cyber Security Incident that has compromised or disrupted one or more reliability tasks of a functional entity."
[74] The E-ISAC portal can be found at the following location: https://www.eisac.com/
[75] The Reliability Standard, CIP-008-5 – Cyber Security – Incident Reporting and Response Planning, can be found at the following location: https://www.nerc.com/_layouts/15/PrintStandard.aspx?standardnumber=CIP-008-5&title=Cyber%20Security%20-%20Incident%20Reporting%20and%20Response%20Planning&jurisdiction=United%20Stateshttps://


AMERICAN OVERSIGHT
EXT-18-2615-C-000082

Monitoring Systems (EACMS). FERC proposes that incident reports be sent to ICS-CERT (in addition to the E-ISAC) and that NERC file an annual, public and anonymized summary with FERC. NERC submitted comments in February 2018, supporting the Commission's proposal to broaden reporting requirements but seeking flexibility to gather data without overburdening entities. Whatever additional data may become available from the outcome of these proceedings will undoubtedly influence the collection, reporting, and maturation of future cybersecurity-related measures in future State of Reliability reports and other publications.

## E-ISAC Cyber Security Findings

The E-ISAC continues to share relevant cyber security information with its members via the E-ISAC portal. In 2017, the portal included 226 posted cyber bulletins. Over 30 percent of the total number of cyber reports involved phishing incidents. Other important trends and analysis that the E-ISAC conducted this year focused on reconnaissance, exploitation, and compromise activities. The E-ISAC observed some activity that leveraged ransomware and other activities that used compromised credentials and technology native to the target environment. The E-ISAC also monitored several non-industry specific campaigns, including WannaCry and NotPetya ransomware activity.

In 2017, members observed several instances of Server Message Block (SMB) protocol[76] credential harvesting. The E-ISAC believes exploitation of SMB misconfigurations may continue to be used as an effective adversary technique to collect and ultimately compromise credentials.

## Phishing

Phishing emails attempt to deceive individuals into providing sensitive information, such as credentials or financial account access (through fraudulent emails masquerading as legitimate communications). Phishing is typically used to gain an initial foothold into a network in support of other activities. Spear phishing[77] and whaling[78] accounted for approximately 15 percent of phishing emails reported to the E-ISAC. Towards the end of 2017, reports pointed to an increase in phishing activity originating from trusted businesses that may have been compromised. The E-ISAC also received a significant increase in spear phishing reports with credential harvesting objectives in 2017. The E-ISAC believes that this is coordinated activity that is targeting the electricity industry, which is consistent with the findings in *Joint Analysis Report* (*JAR*), *JAR-17-20114,*[79] discussed later.

## Malware Targeting Electricity Industry Assets in Ukraine

In June, the E-ISAC released information on modular malware samples that may have been involved in the December 2016 attack on Ukraine's electricity assets. The reports[80] include details of the malware's capabilities.[81] The information was shared with the E-ISAC by industrial control security company Dragos Inc. This information was amplified in a Level 1 (advisory) NERC alert on June 13, 2017, entitled "Modular Malware Targeting Electricity Industry Assets in Ukraine.[82]

The malware is a modular framework that can be tailored to meet desired objectives against specific equipment in the target environment. The malware sample analyzed included capabilities against ABB and possibly Siemens

[76] SMB protocol allows applications, such as Microsoft Word to read and write to file shares and retrieve files and resources on a remote server.
[77] Spear phishing is a subset of phishing activity that targets specific individuals in an organization with tailored content to improve success rates.
[78] Whaling is a subset of phishing activity targeting wealthy or powerful individuals, such as CEOs (i.e., "big fish.")
[79] The Joint Analysis Report can be found at the following location: https://www.us-cert.gov/sites/default/files/publications/JAR_16-20296A_GRIZZLY%20STEPPE-2016-1229.pdf
[80] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/portal-home/document-detail?id=64317
[81] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/portal-home/document-detail?id=64319
[82] The NERC Alert can be found at the following location: http://www.nerc.com/pa/rrm/bpsa/Alerts%20DL/NERCAlert_A-2017-06-13-01_Modular-Electric-Industry-Malware.pdf

AMERICAN OVERSIGHT

EXT-18-2615-C-000083

equipment. The malware's framework design likely allows for the targeting of other vendors or communication protocols.

The E-ISAC and SANS Industrial Control System Team released a joint product summarizing analysis of the modular malware framework associated with the 2016 attack on Ukraine's power system. The report consolidated open source information, clarified important details surrounding the attack, offered lessons learned, and recommended approaches to help the ICS community search for and repel similar attacks.

The threat level protocol (TLP): AMBER version[83] of the Defense Use Case contains considerations specifically for electricity industry asset owners and operators. A TLP: WHITE version[84] was also released without the industry-specific considerations.

### Advanced Persistent Threat Actor Targeting the Electricity Industry and Other Critical Sectors

In June, the E-ISAC released a Level 1 (advisory) NERC alert to inform NERC registered entities of a campaign targeting several critical sectors, including the electricity industry.

The FBI and Department of Homeland Security (DHS) released the *JAR-17-20114* on advanced persistent threat (APT) actors targeting energy, nuclear, and critical manufacturing industry companies, including electricity industry members in the United States. APT actors have attempted to collect and compromise energy industry credentials. The credential harvesting campaign used website water-holing and spear phishing to trigger external authentication attempts via SMB. The remote authentication attempts caused credentials to be exposed outside the protected network, and they were likely compromised.

According to the JAR, the compromised credentials may have been used to access the victim's environment. Once inside the environment, the APT actors used native network management and monitoring tools to collect additional information, including additional authentication information and possibly establish persistence.

In July, the FBI and DHS released an update to *JAR-17-20114* that expanded the list of targeted entities to include government organizations as well as water and aviation sectors members. The update also provided additional indicators of compromise and more details into the tactics, techniques, and procedures used by the threat actors.

### Dragonfly

In September 2017, Symantec published a report[85] tying activity similar to activity reported in NERC Alert 2017-06-30-01[86] to an APT group called "Dragonfly" (i.e., Energetic Bear, Koala, and Iron Liberty). The E-ISAC, Symantec, and other security researchers agree that the activity reported indicates high interest in electricity industry companies and that the actors have a high level of sophistication.

[83] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/portal-home/document-detail?id=64398
[84] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/portal-home/document-detail?id=64412
[85] The Symantec report can be found at the following location: https://www.symantec.com/connect/blogs/dragonfly-western-energy-sector-targeted-sophisticated-attack-group
[86] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/portal-home/article-detail?id=66010

AMERICAN OVERSIGHT

EXT-18-2615-C-000084

## Level 2 Recommendation NERC Alert based on DHS Issuance of Binding Operational Directive 17-01

On October 5, 2017, the E-ISAC released a Level 2 (Recommendation) NERC alert to inform NERC registered entities of supply chain risks in relation to a directive to executive branch agencies by DHS and to request information to assess the extent of exposure of the BPS.

To implement a stronger supply chain risk management security posture, on September 13, 2017, DHS issued *Binding Operational Directive 17-01,*[87] which notified all executive branch agencies, "to take actions related to the use or presence of information security products, solutions, and services supplied directly or indirectly by AO Kaspersky Lab or related entities." This document[88] describes the directive and the reasoning behind it and offers recommendations and additional information on supply chain risks to the North American BPS.

## Large Botnets

In September 2017, CheckPoint[89] and Netlab360[90] reported that more than one million devices may be part of a botnet larger than the Mirai[91] botnet. The new botnet has been named "IoTroop" or "IoT_reaper."

The E-ISAC has previously reported on risks associated with Internet of Things devices, including the 2016 release of a Level 2 (recommendation) NERC alert[92] to registered entities.

## Malware Targeting Safety Instrumented Systems

Dragos Inc. and FireEye identified a new malware that targets safety instrumented systems (SIS) devices in November 2017. Dragos directly shared analysis and threat information on this malware with the E-ISAC. The malware can disable the SIS protection, leaving critical industrial control systems vulnerable to failure without the safety trip from the SIS.

The E-ISAC has not received any reports of the malware targeting SIS systems being found on systems within NERC's footprint.

## 2018 Cyber Security Outlook

As the E-ISAC looks to 2018, advanced persistent threat actors will almost certainly continue to specifically target the electricity industry. Some tactics and trends are anticipated:

- **Continued and More Sophisticated Phishing Activity**: The E-ISAC expects an increase in sophisticated phishing activity against ERO members. Recent phishing activity has focused on the technique of directing victims to a malicious site in order to harvest their credentials.
- **Compromise of Trusted Business Partners**: The E-ISAC expects an increase of phishing activity originating from trusted business partners that have been compromised (e.g., construction contractors, business support vendors, service providers). The E-ISAC expects sharing levels to increase as smaller business partners may make easier targets of compromise from their smaller security budgets. Small businesses make for attractive initial targets because a phishing email from a trusted source may be more likely to be opened.
- **Cryptocurrency Mining**: As long as the value of cryptocurrency continues to remain high, the E-ISAC expects illegitimate cryptocurrency mining activity to be consistent or increase. The activity may not be targeted

[87] The Binding Operational Directive can be found at the following location: https://cyber.dhs.gov/bod/17-01/
[88] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/portal-home/article-detail?id=66141
[89] The CheckPoint report can be found at the following location: https://research.checkpoint.com/new-iot-botnet-storm-coming/
[90] The Netlab360 report can be found at the following location: http://blog.netlab.360.com/iot_reaper-a-rappid-spreading-new-iot-botnet-en/
[91] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/
[92] For more information, authorized users can go to the E-ISAC portal at the following location: https://www.eisac.com/portal-home/cyber-bulletin-detail?id=68561

AMERICAN OVERSIGHT

EXT-18-2615-C-000085

malicious activity but can nonetheless consume members' computing resources and increase their electricity consumption.

# Physical Security

## Security Metric: Reportable Physical Security Events

Since 2015, one physical security event occurred that caused a loss of load as reflected in **Figure 6.1**.

This near-zero result does not suggest that the risk of a physical security event causing a loss of load is low as the number of reportable events has not declined over the past two years. Although this metric does not include physical security events affecting equipment at the distribution level (i.e., non-BES equipment), NERC receives information through both mandatory and voluntary reporting that indicates distribution-level events are more frequent than those affecting BES equipment. Some observed and potential risks are detailed in the E-ISAC physical security data and findings available to those with access to the E-ISAC portal.

Responsible entities must report physical security events to the E-ISAC as required by the *NERC EOP-004-3 Event Reporting Reliability Standard.*[93] This metric reports the total number of physical security reportable events[94] that occur over time and identifies how many of these events have resulted in a loss of load. It is important to note that any loss of load, whether directly caused by an adversary or intentionally shed as part of the real-time response, will meet the threshold for inclusion in this metric. For example, if load was shed as a result of safety concerns due to a break-in at a substation, the event is counted even though no equipment damage directly caused the loss of load. The metric provides the number of physical security reportable events and an indication of the resilience of the BES to operate reliably and continue to serve load.

Note: This metric does not include physical security events reported to the E-ISAC that do not meet the reporting threshold as defined by the *NERC EOP-004-3 Reliability Standard*, such as physical threats and damage to substation perimeter fencing. Also, this metric does not include physical security events that affect equipment at the distribution level (i.e., non-BES equipment).

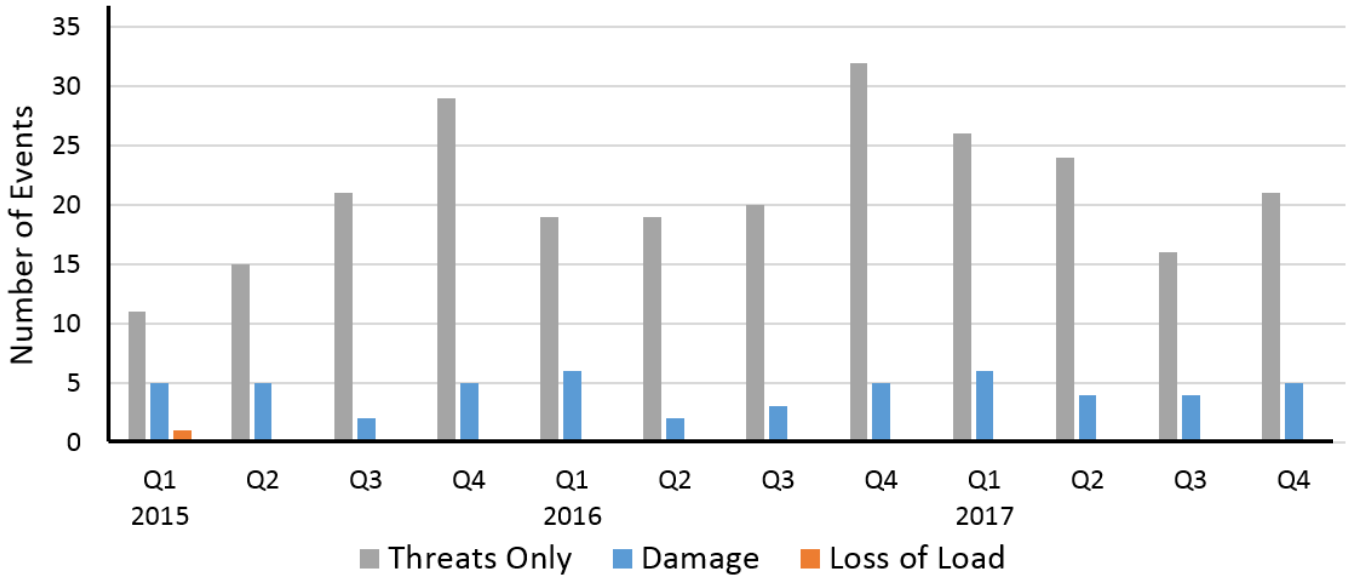



**Figure 6.1: Reportable Physical Security Events**

[93] Reliability Standard EOP-004-3 Event Reporting can be found at the following location: https://www.nerc.com/pa/Stand/Reliability%20Standards/EOP-004-3.pdf

[94] Reportable Events are defined in Reliability Standard EOP-004-3 Event Reporting.

AMERICAN OVERSIGHT



EXT-18-2615-C-000086

# Metric Contextual Information: Recent Physical Security Developments

## E-ISAC Physical Security Findings

The E-ISAC physical security analysts capture, analyze, and disseminate physical security incidents reported by electricity industry members to fellow E-ISAC members, law enforcement, and government agencies. The information is disseminated in a nonattributed format and is valuable in ongoing situational awareness, detection, and prevention of similar incidents. The physical security analysts also provide reporting and analysis regarding sector-relevant global incidents.

Sources of the physical reports were voluntary incident shares, RCIS messages, OE-417s, and EOP-004s. Members shared over 57 percent of the incidents directly to the E-ISAC, or further context was provided to the E-ISAC after the incident was fully investigated.

There was a considerable increase in direct shares during 2017 by members to the E-ISAC compared to 2016. These direct shares were often phone calls during incident response, emails sharing details (e.g., pictures and law enforcement engagement), or members voluntarily posting incidents to the E-ISAC portal. The E-ISAC conducted over 10 outreach events, including quarterly Critical Infrastructure Protection Committee briefings, visits to regional security meetings, quarterly teleconference participation, and ad-hoc requests. The physical security analysts' outreach efforts and timely bulletins to industry were pivotal in creating a trusted environment for voluntary sharing, and the E-ISAC benefited from regular correspondence from security managers throughout the Regions.

## Reporting Trends

The physical security analysts reviewed the incidents from all segments of the industry by month, ERO Region, and event type. The analysts reviewed events by overall type by using the following categories: Gunfire, Intrusion, Surveillance, Suspicious Activity, Theft, Threat, and Vandalism. For incidents that fell into multiple categories, the E-ISAC categorized them based on the intent of the action. See **Figure 6.2**.

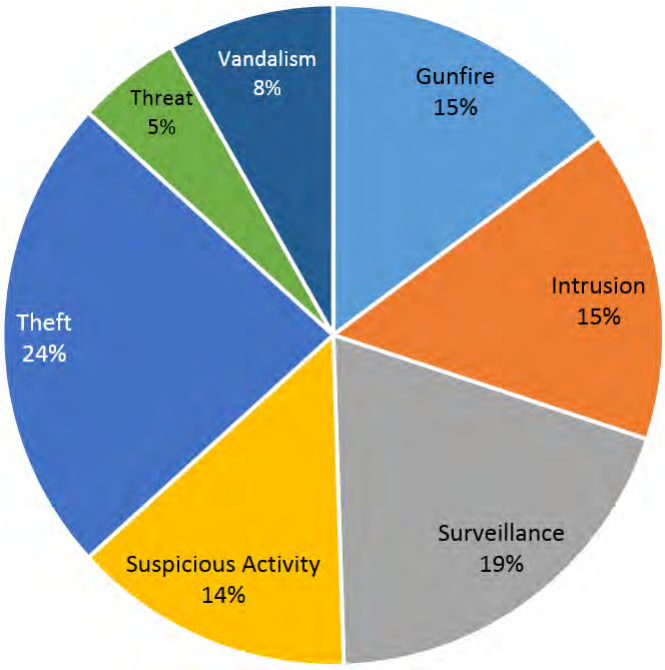



**Figure 6.2: Breakdown of Physical Security Incidents for 2017**

AMERICAN OVERSIGHT



EXT-18-2615-C-000087

In 2017, theft related incidents accounted for 24 percent of incidents. These thefts were predominantly copper related but also included equipment like vehicles, tools, and uniforms.

**Figure 6.3** shows the price of copper over the course of 2017 (left) and tracks the frequency of copper theft events shared with the E-ISAC (right). While the price of copper has increased by almost 20 percent over the past 12 months, there is no correlation in the price increase and an increase in copper theft incidents. The fluctuation in incident frequency is more likely attributed to seasonal temperature changes as individuals looking to steal copper are less likely to do so during the colder and hotter months. It might conversely align with periods of increased construction activities and greater access to materials. Also, as states enact legislation and regulation on metal recycling and resale, the market for stolen copper will diminish.

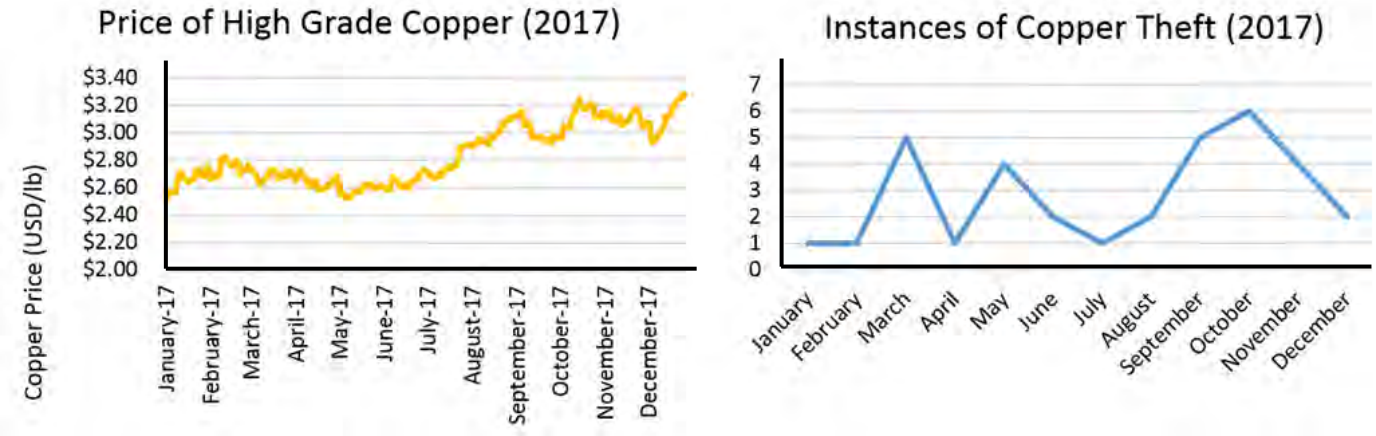



**Figure 6.3: 2017 Copper Theft Prices and Reported Incidents**

Surveillance accounted for 19 percent of incidents. Methods of surveillance included drones, photography, and video footage. While these incidents may seem trivial, this activity could lead to follow-on activity, such as theft or even a coordinated attack. In 2017, the E-ISAC called for increased vigilance of surveillance activity during monthly calls and outreach events, which may have led to an increase in sharing.

Gunfire related incidents accounted for 15 percent of events. A majority of these came from damage discovered during routine inspection. Many members provided the E-ISAC with photographs of the damage that provided helpful context surrounding the incidents. In the fourth quarter of 2017, the E-ISAC observed a slight increase in gunfire damage to wind farms.

## 2018 Physical Security Outlook

After a review of 2017 data, government reports, and industry whitepapers and discussions, the E-ISAC has made some security predictions for 2018. The E-ISAC assesses that there will be an increase in theft, especially in areas more negatively impacted by socio-economic issues. This theft may be copper, equipment, or tools. The E-ISAC advises members to track copper prices, engage with law enforcement and metal recyclers, and continue to share incidents with the E-ISAC. The E-ISAC anticipates a rise in incidents involving suspicious activity, such as targeted phone scams and individuals probing security personnel for facility information or response thresholds. While intent is always challenging to assess, the possibility exists that, intermingled in this continued low-level threat activity, there could be probing attacks to gauge defenses and response actions in preparation for follow-on attacks from individuals or groups with a broad range of ideological motivations. Employee education programs regarding topics like protecting sensitive information and incident sharing procedures may help to counteract these tactics.

AMERICAN OVERSIGHT



EXT-18-2615-C-000088

# Information Sharing

### Security Metric: Industry-Sourced Information Sharing

The E-ISAC continues to share relevant cyber security information with its members via the E-ISAC portal. This metric reports the total number of incident bulletins (i.e., cyber bulletins and physical bulletins) published by the E-ISAC based on information voluntarily submitted by the E-ISAC member organizations as shown in **Figure 6.4**.[95] The E-ISAC member organizations include NERC registered entities and others in the electricity sector, including distribution utilities (i.e., it is not limited to the BPS). Incident bulletins describe physical and cyber security incidents and provide timely, relevant, and actionable information of broad interest to the electricity sector. Given today's complex and rapidly changing threat environment, it is important that electricity sector entities share their own security-related intelligence, as it may help identify emerging trends or provide an early warning to others. This metric provides an indication of the extent to which the E-ISAC member organizations are willing and able to share information related to cyber and physical security incidents they experience. As the E-ISAC member organizations increase the extent that they share their own information, all member organizations will be able to increase their own awareness and ability to respond quickly and effectively. This should enhance the resilience of the BPS to new and evolving threats and vulnerabilities. The modest but steady increase in the number of bulletins published by the E-ISAC suggests that member organizations are sharing security-related information.

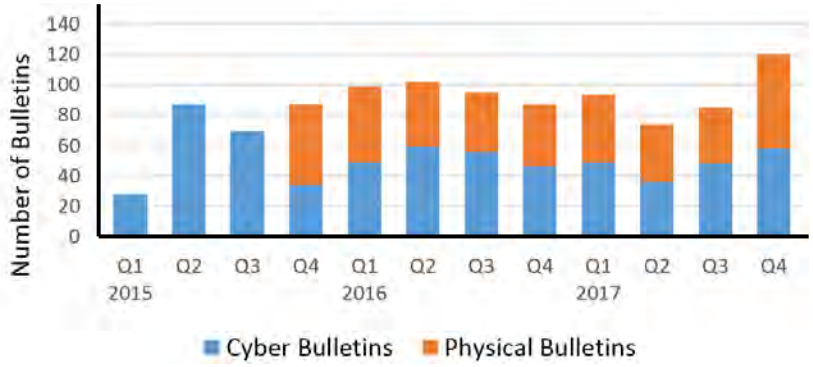



**Figure 6.4: Industry-Sourced Information Sharing**

# Metric Contextual Information: Recent Trends in Information Sharing

### E-ISAC Information Sharing

In 2017, the E-ISAC portal included 226 posted cyber bulletins. Of these, a total of 191 (ref. security Metric 3) included information that members either provided to the E-ISAC or posted themselves, and a total of 31 of the bulletins included information based on Cyber Security Risk Information Sharing Program (CRISP) data. In 2017, the E-ISAC portal included 181 physical bulletins that included information that members either provided to the E-ISAC or posted themselves (ref. security Metric 3). The E-ISAC also posted several bulletins based on information obtained from government and trusted open source partners.

# CRISP Reporting

### Security Metric: CRISP Statistics

CRISP uses many different sources of threat reporting to identify potential indicators of compromise. In 2017, a total of 25 percent of investigations opened in CRISP were based on information initially shared by CRISP participants; this

[95] In September 2015, the E-ISAC launched its new portal. Watchlist Entries are now called Cyber Bulletins. The category Physical Bulletins is on the portal to share physical security information. Prior to 2015 Q4, physical security reports were shared through the E-ISAC Weekly Report but not through Watchlist Entries.

AMERICAN OVERSIGHT



EXT-18-2615-C-000089

is an increase from five percent in 2016 as participants have become more comfortable sharing indicators. The E-ISAC anticipates this number to increase in the future.

CRISP is a public-private partnership cofounded by the DOE and NERC and managed by the E-ISAC that facilitates the exchange of detailed cyber security information among industry, the E-ISAC, DOE, and Pacific Northwest National Laboratory. The program facilitates information sharing and enables owners and operators to better protect their networks from sophisticated cyber threats.

The purpose of CRISP is to collaborate with energy sector partners to facilitate the timely bi-directional sharing of unclassified and classified threat information. CRISP information helps support development of situational awareness tools to enhance the sector's ability to identify, prioritize, and coordinate the protection of its critical infrastructure and key resources.

CRISP participant companies serve approximately 75 percent of electricity customers in the United States. The quantity, quality, and timeliness of the CRISP information exchange allows the industry to better protect itself against cyber threats and to make the BPS more secure.

CRISP reports increased information sharing that resulted in enhanced security awareness of CRISP participants and the rest of the electricity industry. Additionally, anonymized CRISP information shared with the intelligence community led to the discovery of previously unknown compromised computer networks. **Table 6.1** details the reporting statistics from 2017.

In 2017, CRISP analysts generated 121 all-site reports on a variety of threats:

- **Reconnaissance**: Cautious and methodical actors conduct reconnaissance by using a wide variety of techniques and tactics, including port scanning, ICS/SCADA identification, enumeration, and social engineering.
- **Credential Harvesting**: This includes phishing emails, watering holes, open source research, and database exploitation to collect user identification and password credentials to access a target system or masquerade as a legitimate user.
- **Ransomware**: This includes malware that encrypts systems, disks, or specific files/types and requires a ransom payment for the decryption key. High profile ransomware campaigns include WannaCry and NotPetya.
- **Watering Hole**: This includes attacks that leverage the false sense of security provided by a high volume of traffic to legitimate sites. While performing normal functions at a seemingly innocuous site, victims are exposed to malicious code capable of harvesting credentials, redirecting users to malicious sites, or collecting sensitive user information.
- **High-Value Threat Actors**: High value threat actors typically employ multiple techniques and phases of attacks in a cyclical pattern to gain unauthorized entry to networks. Campaigns seen in 2017 include GRIZZLY STEPPE, HIDDEN COBRA, and Operation CloudHopper[96]/Chessmaster.[97]

[96] Information on Operation CloudHopper can be found at the following location: http://baesystemsai.blogspot.com/2017/04/apt10-operation-cloud-hopper_3.html
[97] Information on Chessmaster can be found at the following location: https://blog.trendmicro.com/trendlabs-security-intelligence/chessmaster-cyber-espionage-campaign/


AMERICAN OVERSIGHT
EXT-18-2615-C-000090

| Table 6.1: CRISP 2017 Reporting Statistics | |
|---|---|
| **Product** | **2017 Total** |
| Cases Opened | 1,817 |
| Analyst Generated Reports | 235 |
| Site Annexes | 442 |
| Automated Reports | 187,403 |

**Cases Opened**: The CRISP analysis team opens a case each time an indicator of compromise is queried against CRISP data. Even if no activity was observed against CRISP data, historical cases provide trending and tactics used by threat actors.

**Analyst Generated Reports**: If indicators of compromise are observed in CRISP network traffic, the CRISP team works with the DOE to declassify indicators to disseminate to CRISP participants.

**Site Annexes**: An individual site annex is provided to each CRISP participant where the indicators were observed. A site annex consists of individual CRISP participant data that provides cyber defenders information on when the activity occurred and which system(s) may be communicating with the identified suspicious activity.

**Automated Reports**: Due to the sheer volume of network data, CRISP has developed automated analytical tools. These tools identify unique relationships between network traffic and CRISP participants. CRISP participants can access the automated analytical tools and their unique site reports through the Cyber Analytics Services Access interface. They can also use the Cyber Analytics Services Access application programming interface to integrate into existing processed at local sites.

# Global Vulnerabilities

## Security Metric: Global Cyber Vulnerabilities

This metric reports the number of global cyber security vulnerabilities considered to be high severity (as reflected in Figure 6.5) based on data published by the National Institute of Standards and Technology. The National Institute of Standards and Technology defines high severity vulnerabilities as those with a common vulnerability scoring system[98] of seven or higher. The term "global" is an important distinction as this metric is not limited to information technology typically used by electricity sector entities. The year-over-year increase in global cyber security vulnerabilities compared with global cyber security incidents indicates that vulnerabilities are increasingly being successfully exploited and reinforces the need for organizations to continue to enhance their cyber security capabilities.

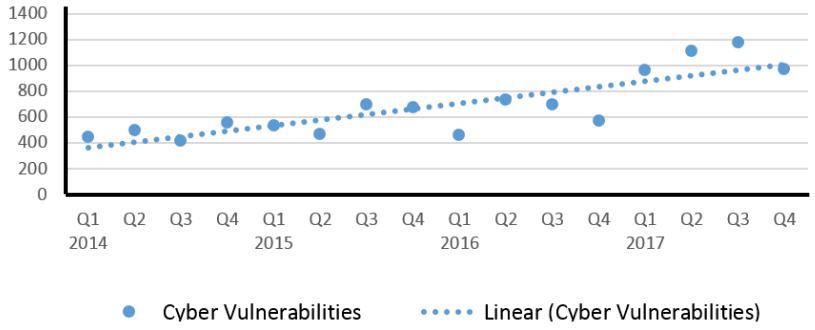



**Figure 6.5: Global Cyber Vulnerabilities**

[98] Ref. NIST: http://nvd.nist.gov/cvss.cfm



AMERICAN OVERSIGHT
EXT-18-2615-C-000091

## Continued Security Metrics Maturation

For this report, the E-ISAC and Security Metrics Working Group have taken a combined approach to assessing the security of the BPS as it relates to overall reliability. Collecting and assessing the inherently quantitative metrics used by the SMWG in recent years is now accompanied with a qualitative narrative to explain the "so what" factor of the metrics, highlight important findings, and provide context that may otherwise be obscured in a simple chart or number. Underlying all this is the clear goal to use these metrics and narrative to project into a future time and less understood topics to make an assessment about the future state of security of the BPS.

## Principles for Future Work

To guide the continued refinement of how security is measured and assessed, five principles were identified and agreed upon by the different groups working in this space:

- Measuring and assessing security requires a shared, clear, and complete lexicon whose use is broadly understood and consistently enforced.
- Metrics, measures, and assessments are different and related:
  - Metrics are the result of counting things (vulnerabilities, incidents, etc.) and are usually quantitative.
  - Measures provide the "so what" to the metrics as a qualitative narrative supported by the metrics.
  - Assessments are a projection of the measures into future time and less understood topics.
- Sometimes measures, but usually assessments, require assumptions to be made, replacing assumptions with fact as more information becomes available is a standing high priority.
- Using consistent frameworks for both the cyber and physical domains, with different metrics but philosophically similar measures, will improve process efficiency as well as external comprehension.
- Stakeholders involved in these efforts must be diligent in maintaining the appropriate distinctions between different uses[99] of measures even when the data sources underlying the metrics overlap.

Throughout 2018, the E-ISAC, System Security Metrics Working Group (SMWG), and ERO Enterprise staff will continue to refine how security is measured. One of the most promising areas under development is the application of sociotechnical probabilistic risk assessment[100] to mathematically combine calibrated subject matter expert assessments of the likelihood of contributing elements of a certain security outcome to assess the time-bounded likelihood of the realization of a specific harm. Integral to this technique is the ability to similarly estimate the efficacy of various mitigation strategies to inform risk management.

[99] In recent years, these different uses could generally be divided into categories for the actual security outcomes seen on the BPS, performance objectives for the E-ISAC as supported by industry, and ERO Enterprise corporate metrics (which intermingled aspects from the first two categories).

[100] While not explicitly named "socio-technical probabilistic risk assessment" by them, this is the concept and techniques described by Douglas W. Hubbard and Richard Seiersen in their 2016 book *How to Measure Anything in Cybersecurity Risk.*

AMERICAN OVERSIGHT



EXT-18-2615-C-000092

# Chapter 7: Actions to Address Recommendations in Prior State of Reliability Report

The *State of Reliability* report identifies key findings, and many of these findings contain recommended actions for NERC or the larger ERO Enterprise, PAS, and other subcommittees and working groups. **Table 7.1** shows the number of past recommendations and includes whether the item was completed as of the *State of Reliability 2017* report, whether the item was ongoing in 2017 but has since been closed out as a completed recommendation, or whether the item is still an ongoing recommendation. Actions completed through the 2017 report are considered archived, and details about their completion are available in this chapter of the report.[101]

**Table 7.1: Recommendation Status Summary**

| Key Finding Action Status | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total |
|---|---|---|---|---|---|---|---|---|
| Completed Status Through 2017 Report | 4 | 6 | 7 | 5 | 9 | 3 | 0 | 34 |
| Completed During 2017 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 6 |
| Ongoing as of 2018 Report | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 5 |
| **Total Actions from All Reports** | **4** | **6** | **7** | **5** | **12** | **7** | **4** | **45** |

**Table 7.1** shows that, over the six years of reports, 45 recommendations have been developed. Actions to address those specific items have been completed for 40 recommendations. These actions are understood to have improved the reliability of the BPS. In this report, additional key findings and recommendations are identified and will be reported in future State of Reliability reports.

**Table 7.2** outlines actions that have addressed the recommendations completed during 2016, and **Table 7.3** outlines recommendations where actions are currently ongoing and will be included in future reports.

**Table 7.2: Completed Recommendations for 2017**

| Item Reference | Finding SOR Report Year | Key Finding SOR Reference | Recommendations | Actions Taken to Date |
|---|---|---|---|---|
| 1 | 2015[102] | Page 32 Paragraph 1 | The ERSWG has recommended a measure that was approved by the OC and PC for data collection and testing. This may support development of new voltage and reactive support metrics going forward. | The ERSTF Measures Framework Report[103] contained a proposed measure 7, which was assigned to PAS to develop the necessary data collection processes to allow a test of measure 7 as a potential future voltage and reactive metric. |

[101] Prior *State of Reliability* reports can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Pages/default.aspx
http://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2015%20State%20of%20Reliability.pdf
[102] The *State of Reliability 2015* can be found at the following location:
https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2015%20State%20of%20Reliability.pdf
[103] The *Essential Reliability Services Task Force Measures Framework Report* can be found at the following location:
https://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/ERSTF%20Framework%20Report%20-%20Final.pdf

AMERICAN OVERSIGHT

EXT-18-2615-C-000093

| Table 7.2: Completed Recommendations for 2017 | | | | |
|---|---|---|---|---|
| **Item Reference** | **Finding SOR Report Year** | **Key Finding SOR Reference** | **Recommendations** | **Actions Taken to Date** |
| | | | | During 2016, PAS developed and conducted a voluntary data collection and released the data for analysis to the SAMS.<br><br>During 2017, SAMS determined that this was not a feasible measure. The PC accepted that recommendation and no further work will be performed relative to measure 7. |
| 2 | 2016[104] | Page 1 Key Finding 2 | NERC should consider performing daily severity risk index (SRI) calculations on a regional basis to investigate the feasibility of correlating performance with regional weather data. | NERC and PAS are examining Interconnection-level daily SRI calculations prior to developing possible daily SRI calculations on the regional level.<br><br>PAS determined in 2017 that SRI daily calculations are not feasible at the regional level. This report contains a pilot at the Interconnection level using WECC. |
| 3 | 2016 | Page 1 Key Finding 3 | NERC should provide focus on HP training and education through conferences and workshops that increase knowledge of possible risk scenarios. | NERC continues to host HP workshops to enhance awareness of the HP impact on system risk. NERC and NATF continue to conduct the annual Improving Human Performance on the Grid conference in Atlanta in late March, and Regions have also conducted HP conferences/training.<br><br>While this will continue as an ongoing activity, this action is closed for purposes of the report. |
| 4 | 2017[105] | Page 1 Key Finding 1 | As NERC continues to track and trend events and provide recommendations for risk mitigation, NERC should include vendors and manufacturers in analyses when possible. | In analyzing events related to inverter based generation events, NERC and WECC have included inverter vendors and manufacturers soon after determination that issues existed. |

[104] The *State of Reliability 2016* can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2016_SOR_Report_Final_v1.pdf
[105] The *State of Reliability 2017* can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/SOR_2017_MASTER_20170613.pdf

AMERICAN OVERSIGHT

EXT-18-2615-C-000094

| Table 7.2: Completed Recommendations for 2017 | | | | |
|---|---|---|---|---|
| **Item Reference** | **Finding SOR Report Year** | **Key Finding SOR Reference** | **Recommendations** | **Actions Taken to Date** |
| 5 | 2017 | Page 2 Key Finding 2 | Continue with regional efforts on education and outreach to continue reduction of protection system misoperations. | In addition to annual RF and SPP misoperation conferences, WECC has established a strong leadership position with its Misoperation Summit webinar series. NERC is additionally working with the Regions and with industry through the PC and SPCS to get a comprehensive misoperation DRI developed. |
| 6 | 2017 | Page 5 Key Finding 5 | Increase awareness of HP issues with industry and policymakers | HP emerges as an issue in multiple aspects of BPS performance, including TADS transmission outages. NERC and NATF jointly conduct the annual Improving Human Performance on the Grid conference in Atlanta in late March, and Regions and various industry groups also conduct high quality HP conferences and training to address this need.<br><br>This report has cited the HP conferences for years, but this year is attempting to link significant BPS reliability impacts that drive the need for increasing HP efforts with the educational venues. For purposes of this report, this item is closed. |

| Table 7.3: Ongoing Recommendations | | | | |
|---|---|---|---|---|
| **Item Reference** | **Finding SOR Report Year** | **Key Finding SOR Reference** | **Recommendations** | **Actions Taken to Date** |
| 1 | 2015[106] | Page 31 Paragraph 2 | The collected data (transmission related events resulting in load loss) does not indicate whether load loss during an event occurred as designed. Data collection will be refined in the future for this metric to allow enable data grouping into categories, such as separating load loss as | NERC, PAS, and the TADSWG are currently evaluating data collection and methods that may be enhanced to provide increased awareness of year-over-year trends when load loss occurs during transmission events. These efforts may include collaboration with IEEE and industry forums. This is included in PAS annual reliability metrics review process. |

[106] The *State of Reliability 2015* can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2015%20State%20of%20Reliability.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000095

| Table 7.3: Ongoing Recommendations | | | | |
|---|---|---|---|---|
| **Item Reference** | **Finding SOR Report Year** | **Key Finding SOR Reference** | **Recommendations** | **Actions Taken to Date** |
| | | | designed from unexpected firm load loss. Also, differentiating between load losses as a direct consequence of an outage compared to load loss as a result of an operator-controlled action to mitigate an IROL/SOL exceedance should be considered. | |
| 2 | 2015 | Page 43 Paragraph 4 | Since monitoring the changes that occurred in 2014 versus prior years, the time range categories for IROL exceedances may need to be reviewed. Based on this anticipated result (that monitoring granularity has increased, which may result in a variance over history), the parameters for reporting on Time Range 1 should be examined to ensure that the correct information is being captured. | The TADSWG is currently evaluating data collection and methods that may be enhanced to provide increased awareness of year-over-year trends when load loss occurs during transmission events.<br><br>Also, the Methods for Establishing IROLs Task Force is currently reviewing consistency of IROL exceedance criteria and may be recommending changes to the IROL exceedance metric. |
| 3 | 2016[107] | Page 2 Key Finding 5 | NERC should provide leadership in collaborative efforts to improve system model validation, particularly dynamic models, including the use of synchrophasor and other advanced technology. | Several modeling improvement initiatives have begun. The Synchronized Measurement Subcommittee and the Power Plant Modeling and Verification Task Force have been created to implement and monitor several modeling initiatives. There have also been a number of reliability guidelines and technical reference documents prepared to enhance modeling efforts. |
| 4 | 2016 | Page 2 Key Finding 6 | The ERO should lead efforts to monitor the impacts of resource mix changes with concentration on the following:<br>• ERS measures for frequency and voltage support that have been developed and adopted | The ERSWG continues to develop implementation plans for various ERS measures. |

[107] The *State of Reliability 2016* can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2016_SOR_Report_Final_v1.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000096

| Table 7.3: Ongoing Recommendations | | | | |
|---|---|---|---|---|
| **Item Reference** | **Finding SOR Report Year** | **Key Finding SOR Reference** | **Recommendations** | **Actions Taken to Date** |
| | | | • Methods to increase the population and capability of resources providing frequency response, especially under the scenario that conventional generation continues to be replaced with variable energy resources<br>• Reliability of reactive power generators, such as static var compensators (SVCs), FACTS devices, and synchronous condensers when applied to replace the voltage support function of retiring conventional generators, such as low-voltage ride-through<br>• Protection for these devices as well as compatibility and coordination with other BPS protection and controls | |
| 5 | 2017[108] | Page 3 Key Finding 3 | Increase awareness of frequency response challenges. | NERC has in the last three years (including in this report) emphasized that there is a frequency response nadir to UFLS set point margin risk in the arresting phase as well as the requirement to meet IFRO in the stabilizing phase. NERC has also established a standard drafting team to explore and accomplish improvements to BAL-003.1.1 in response to the receipt of |

[108] The State of Reliability 2017 can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/SOR_2017_MASTER_20170613.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000097

| Table 7.3: Ongoing Recommendations | | | | |
|---|---|---|---|---|
| **Item Reference** | **Finding SOR Report Year** | **Key Finding SOR Reference** | **Recommendations** | **Actions Taken to Date** |
| | | | | SARs. This work will continue through 2018 at minimum.<br><br>NERC and the NAGF are also jointly addressing the need for increased awareness of the challenges. |

AMERICAN OVERSIGHT



EXT-18-2615-C-000098

# Appendix A: Statistical Analysis of Daily Transmission and Generation Performance

## Assessment of Daily Transmission Performance and Daily Generation Performance

Analyses in the following sections show a stable daily transmission system performance and an improved daily generation performance in 2017 based on the analysis of the 2013–2017 TADS and GADS data, respectively.

### Daily Transmission Loss (DTL) and Daily Generation Loss (DGL)

The DTL is defined by **Equation A.1**.

$$DTL = \frac{\sum(Equivalent\ MVA\ of\ TADS\ elements\ with\ sustained\ automatic\ outages\ initiated\ on\ a\ given\ day)}{\sum(Equivalent\ MVA\ of\ elements\ in\ TADS\ inventory)} \cdot 1000$$

**Equation A.1**

In **Equation A.1:**

- TADS elements are ac circuits, dc circuits, and transformers reportable in TADS.[109]
- Sustained automatic outages have a duration of one minute or greater.

**Defined by Equation A.1**: DTL is a share of the total megavolt ampere (MVA) of the BPS transmission system lost on a given day due to sustained automatic outages.[110] **Table A.1** and **Table A.2** list equivalent MVA values for TADS elements by the voltage class reportable in TADS.

**Table A.1: Equivalent MVA Values of AC Circuits and Transformers**

| Voltage Class | AC Circuits | Transformers |
|---|---|---|
| 100–199 kV | 200 | 100 |
| 200–299 kV | 700 | 259 |
| 300–399 kV | 1,300 | 518 |
| 400–599 kV | 2,000 | 1,034 |
| 600–799 kV | 3,000 | 1,441 |

**Table A.2: Equivalent MVA Values of DC Circuits**

| Voltage Class | DC Circuits |
|---|---|
| 100–199 kV | 545 |
| 200–299 kV | 140 |
| 400–400 kV | 1,033 |
| 500–599 kV | 818 |

[109] From 2008–2015, TADS collected the inventory and outage data on transmission elements with voltages 200 kV and above. In 2015, TADS data collection changed to include inventory and outage data for all BPS transmission elements in NERC footprint. This change led to a larger inventory (below 200 kV) and resulted in more outage data collected.

[110] The ratio is multiplied by 1,000 for convenience to avoid working with and presenting very small numbers.

AMERICAN OVERSIGHT



EXT-18-2615-C-000099

The DGL is defined by **Equation A.2**:

$$DGL = \frac{\sum(MW\ rating\ of\ generators\ with\ unplanned\ outages\ that\ started\ on\ a\ given\ day)}{\sum(MW\ rating\ of\ all\ available\ generators)} \cdot 1000$$

**Equation A.2**

In **Equation A.2**:

- Only conventional generation reported in the GADS is includable generation.
- A monthly capacity value is used as a denominator.

**Defined by Equation A.2**: DGL is a share of the total MW rating of conventional generation reportable in GADS lost on a given day due to unplanned (forced) outages.[111]

## Daily Transmission Performance

### *DTL Statistics and Time Trend*

Analysis of a daily BPS transmission system performance is based on the DTL values calculated for the years 2013–2017 by **Equation A.1**. **Table A.3** shows the descriptive statistics of the five-year DTL data.

**Table A.3: Descriptive Statistics of DTL (2013–2017)**

| Days | Mean | Standard Deviation | Minimum | Maximum | Median |
|---|---|---|---|---|---|
| 1.826 | 0.81 | 0.59 | 0.00 | 8.41 | 0.69 |

**Table A.3** informs that, on average, about 0.08 percent of the total MVA has been lost daily due to sustained outages of TADS elements over these five years. For half of the days, the transmission loss was below 0.069 percent and for another half it was above 0.069 percent; the maximum DTL was more than ten times the average with 0.84 percent of the total MVA lost (July 4, 2013). On that day, 29 sustained outages were reported in TADS; a total of 24 of these (22 outages of ac circuits and two dc circuit outages) were caused by wildfires in Canada (NPCC), and the remaining five outages were spread across the continent and not related.

In **Figure A.1**, the daily performance of the DTL is shown over the five-year history. The daily values follow prominent seasonal pattern, which is analyzed in detail in the next section. Also, clearly visible are upper outliers—days with multiple sustained outages of the transmission system.

[111] The ratio is multiplied by 1,000 for convenience to avoid working with and presenting very small numbers.

AMERICAN OVERSIGHT



EXT-18-2615-C-000100

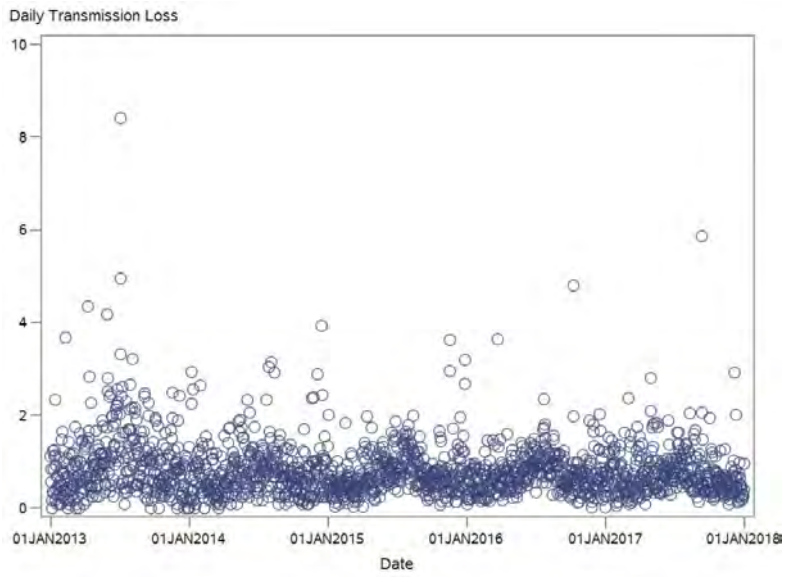



**Figure A.1: Scatter Plot of DTL (2013–2017)**

Because of TADS data collection changes in 2015, a time trend-line is calculated and significance of its slope is tested for the DTL data limited for the years 2015–2017. The scatter plot of the 2015–2017 DTL is shown in **Figure A.2** data along with a time trend-line.

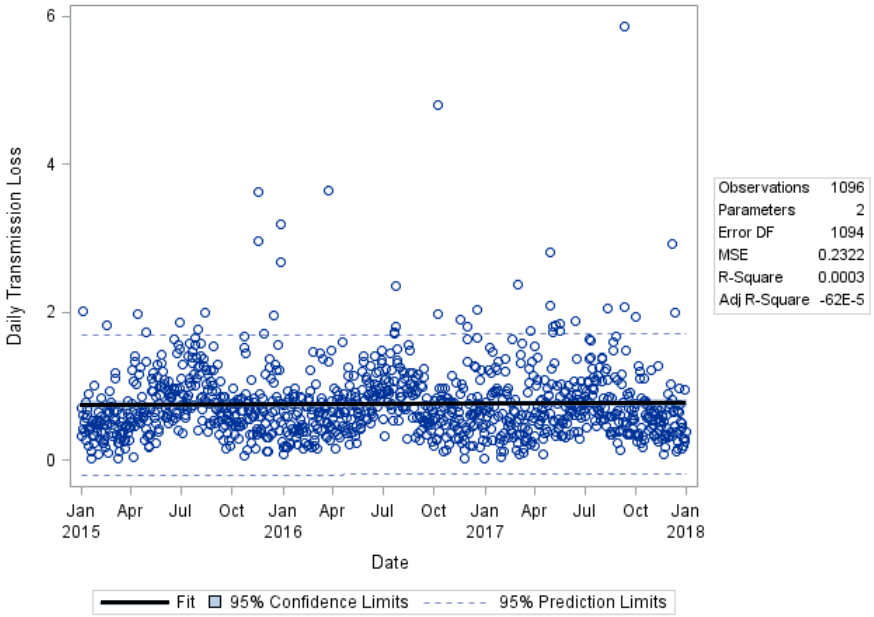



**Figure A.2: Scatter Plot of DTL with Time Trend Line (2015–2017)**

The time trend line has a positive slope that is not statistically significant (p-value=0.57). This result indicates that it is very likely that the positive slope was observed by mere chance and, on average, the daily transmission system performance was stable from 2015–2017.

AMERICAN OVERSIGHT



EXT-18-2615-C-000101

### *Seasonal Analysis of Transmission Performance*

Figure A.1 and Figure A.2 reveal a prominent seasonality of the DTL. Further analysis of the seasonal performance confirms and quantifies differences in DTL by season.[112] Table A.4 shows the DTL descriptive statistics by season based on the 2013–2017 data.

**Table A.4: Descriptive Statistics of DTL by Season**

| Season | N | Mean | Standard Deviation | Minimum | Maximum | Median |
|---|---|---|---|---|---|---|
| Winter | 451 | 0.68 | 0.54 | 0.00 | 3.93 | 0.56 |
| Spring | 305 | 0.72 | 0.53 | 0.00 | 4.34 | 0.62 |
| Summer | 765 | 0.95 | 0.63 | 0.00 | 8.41 | 0.85 |
| Fall | 305 | 0.70 | 0.53 | 0.00 | 4.80 | 0.60 |

Seasonal differences in DTL are further illustrated in the boxplot of Figure A.3.

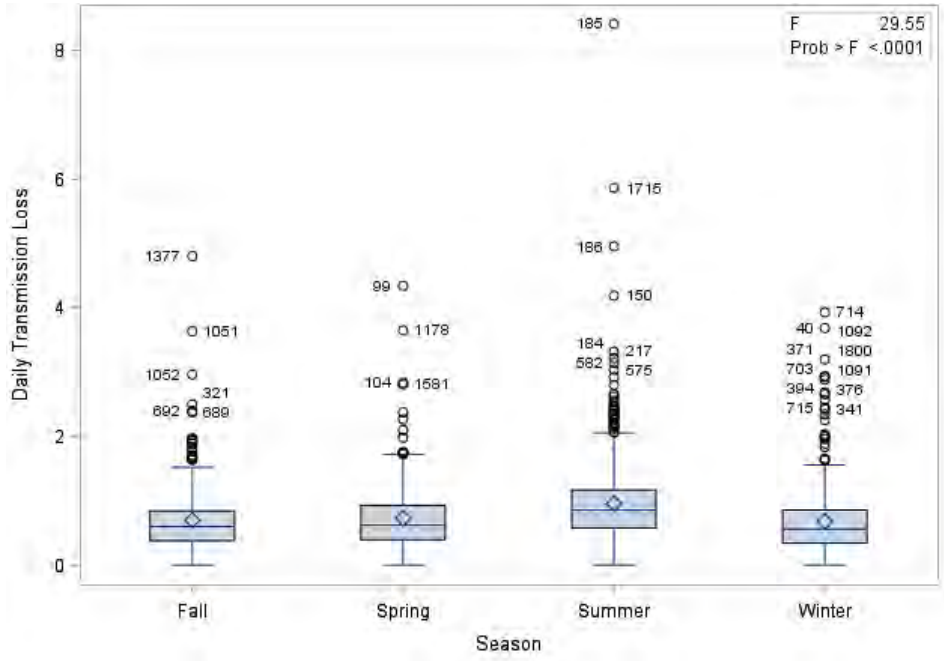



**Figure A.3: Boxplot of DTL by Season 2013–2017**

Statistical tests[113] indicate statistically significant differences among seasonal distributions of the DTL. Figure A.4 shows the mean DTL by season ordered from highest (for summer) to lowest (for winter) and summarizes results of Duncan's grouping test for the seasonal means. Each bar connects seasons with similar (not statistically significantly different) mean DTL values. Thus, differences in spring, fall, and winter DTL (connected by a red bar) are not significant, and, on average, these seasons have similar daily transmission losses. Summer DTL is the highest and statistically significantly different from the other seasons.

[112] For seasonal analysis of TADS and GADS data in Appendix A, winter includes the months of January, February, and December of the same calendar year. Summer includes May through September; all other months are categorized as spring/fall.

[113] ANOVA with Fisher's Least Significant Difference test and Duncan grouping test at the significance level of 0.05.



AMERICAN OVERSIGHT
EXT-18-2615-C-000102

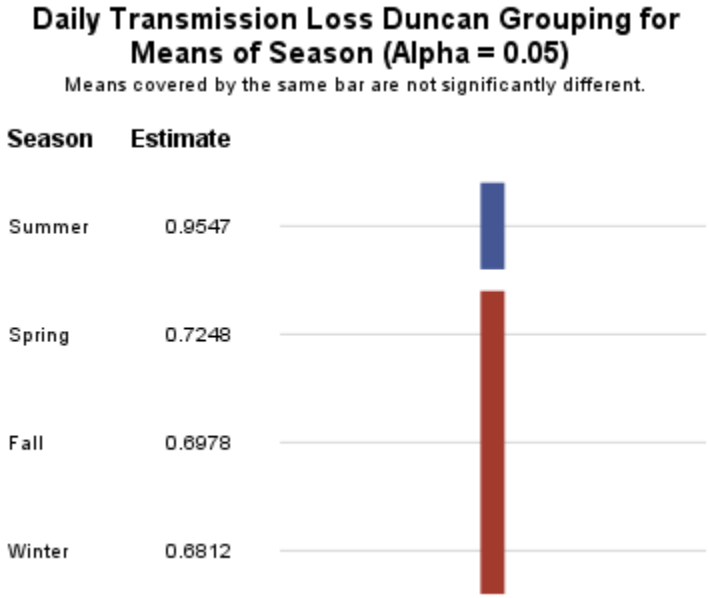



**Figure A.4: Average DTL by Season and Seasonal Grouping by Mean DTL (2013–2017)**

### *2017 Transmission Performance versus Historical Seasonal Bounds*

The detected seasonal differences in the transmission system performance motivated the analysis of daily 2017 transmission performance based on seasonal bounds for typical daily values.

**Figure A.5** shows a daily plot of the DTL score for 2017 (shown in blue) against bounds of typical seasonal performance that is calculated by using 2013–2016 (historical) daily data. On a daily basis, a general normal range of performance exists. This normal range is defined as the 90-percent confidence interval of historical seasonal values and is visible as a band between the fifth percentile of seasonal values (orange line) and the ninety-fifth percentile of seasonal values (grey line). For each season, the historical median and mean are also shown. Similarity of parameters of the distribution of the winter, spring, and fall DTL is further visible in **Figure A.5**.

Days of stress rise above the seasonal daily control limits. **Figure A.5** shows that the BPS transmission performance in 2017, as measured by the DTL, had eight stress days that exceeded corresponding historical seasonal bounds. This indicates a stable overall performance comparatively to the previous four years since for a year similar to the historical years 18 or 19 stress day would be expected. However, the six most extreme days in 2017 exceeded any seasonal control bounds.

AMERICAN OVERSIGHT



EXT-18-2615-C-000103

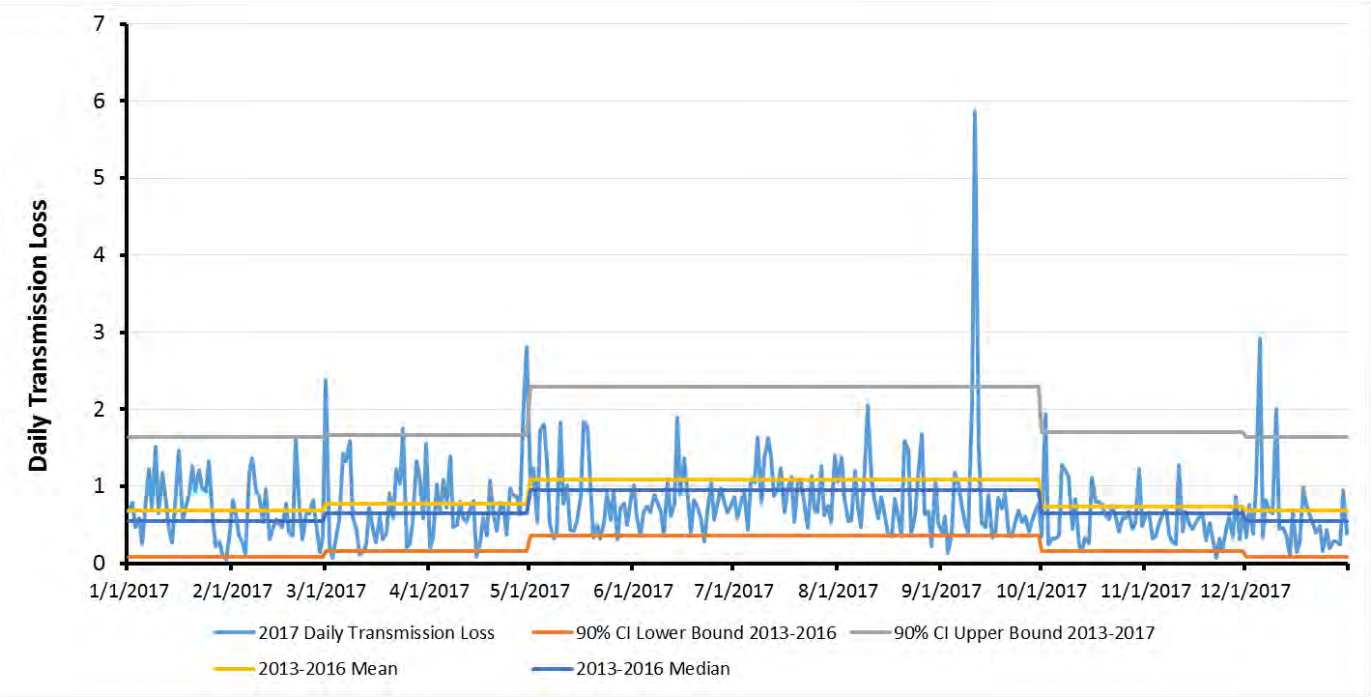



**Figure A.5: 2017 DTL with the 2013–2016 90-Percent Confidence Interval by Season**

On two of these extreme days, September 10 and 11, a total of 325 sustained outages started (seven transformer outages and 318 ac circuit outages), 194 of which happened in Florida and were caused by Hurricane Irma (with the TADS ICC Weather, Excluding Lightning). The majority of the 55 sustained outages that started on another extreme day, December 5, 2017, were initiated by wildfires in WECC (with the TADS ICC Fire). The two extreme days on April 29 and 30 had 146 sustained outages (six transformer outages and 140 ac circuit outages) spread across North America (all Regions except NPCC and FRCC) with 26 of these outages caused by Weather, Excluding Lightning, and remaining outages initiated by different causes. On these two days, a total of 69 tornadoes were reported in SPP, SERC, and Texas RE by the National Weather Service as well as multiple hails and winds spread in SPP, SERC, Texas RE, MRO, and RF. On the last extreme day, March 1, there were 48 sustained outages (five transformer outages and 43 ac circuit outages) started, with 21 of them reported by SERC and 16 by RF. A total of 26 of these 48 outages were initiated by Weather, Excluding Lightning. On this day, the National Weather Service reports about 16 tornadoes, 11 hail occurrences, and 616 wind occurrences concentrated in RF and SERC.

It is noteworthy that Hurricane Harvey is not one of the extreme transmission days of 2017. On August 26, 2017, a total of 56 sustained outages were reported in TADS, and 40 of them occurred in Texas and were caused by Harvey (with TADS ICCs Weather, Excluding Lightning, and Failed AC Circuit Equipment); however, most of the outages involved the 100–199 kV ac circuits[114] and their contribution to the daily transmission loss was relatively small (see Equation A.1 and **Table A.1**).

### *Daily Transmission Performance by Year*

The descriptive statistics of the annual distributions of the daily transmission loss values are listed in **Table A.5**.

[114] The 100–199 kV ac circuits account for about 80 percent of the Texas RE ac circuit inventory in TADS. The relatively low (seventeenth) rank of August 26 (Hurricane Harvey) highlights the fact that a Regional inventory's voltage mix is a factor that magnifies or decreases an impact of Regional transmission outage events to the DTL values because of the NERC-wide normalization in Equation A.1. This observation indicates that similar regional/Interconnection analysis could be beneficial supplement to the analysis of the North American BPS.

AMERICAN OVERSIGHT



EXT-18-2615-C-000104

| Table A.5: Descriptive Statistics of DTL by Year | | | | | | |
|---|---|---|---|---|---|---|
| Year | N | Mean | Standard Deviation | Minimum | Maximum | Median |
| 2013 | 365 | 0.99 | 0.83 | 0.00 | 8.41 | 0.84 |
| 2014 | 365 | 0.77 | 0.57 | 0.00 | 3.93 | 0.68 |
| 2015 | 365 | 0.76 | 0.47 | 0.03 | 3.63 | 0.67 |
| 2016 | 366 | 0.75 | 0.46 | 0.01 | 4.80 | 0.69 |
| 2017 | 365 | 0.75 | 0.52 | 0.05 | 5.86 | 0.65 |

The year-over-year differences in transmission performance are further illustrated in the boxplot of **Figure A.6**.

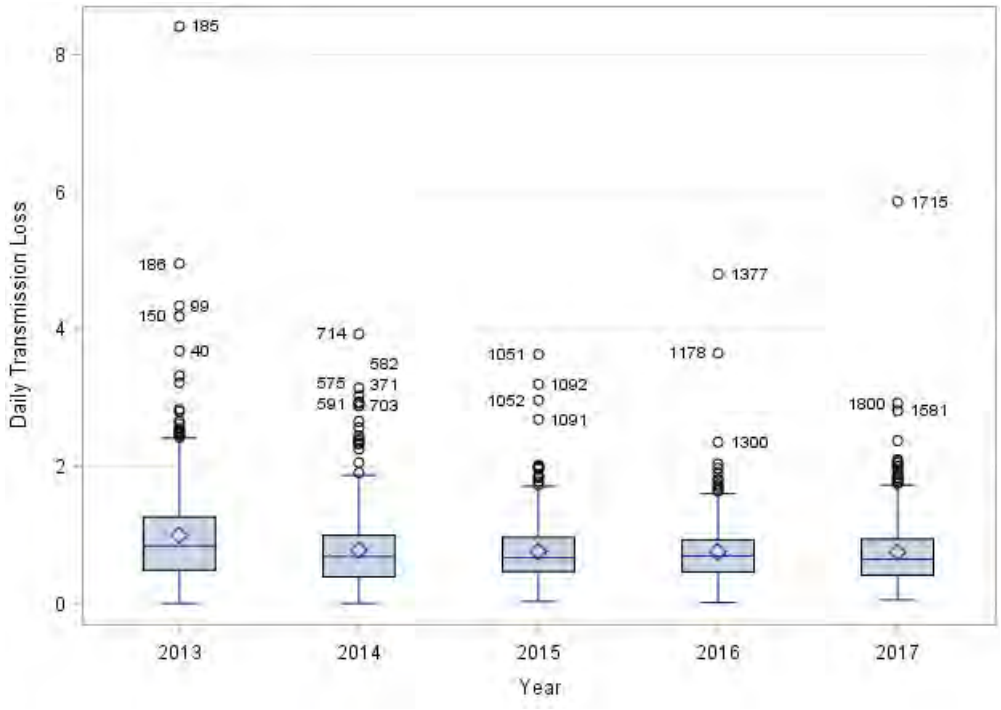



**Figure A.6: Boxplot of DTL by Year (2013–2017)**

**Table A.5** and **Figure A.6** show that the 2017 transmission performance was the best as measured by the mean and median, but the variability of values as measured by the standard deviation was relatively high.

Because of TADS data collection changes in 2015, statistical tests on significance of differences in annual DTL distributions were performed only for the annual datasets for the years 2015–2017. Statistical tests[115] found no statistically significant difference among these annual distributions (with a remarkable p-value=0.96 for ANOVA). This result provides just other confirmation of a stable performance of the BPS transmission system in 2017.

[115] ANOVA with Fisher's Least Significant Difference test and Duncan grouping test at the significance level of 0.05.

AMERICAN OVERSIGHT



EXT-18-2615-C-000105

## Daily Generation Performance

### *DGL Statistics and Time Trend*

Analysis of a daily BPS generation system performance is based on the DGL values calculated for the years 2013–2017 by **Equation A.2**. Table A.6 shows the descriptive statistics of the five-year DGL data.

**Table A.6: Descriptive Statistics of DGL (2013–2017)**

| Days | Mean | Standard Deviation | Minimum | Maximum | Median |
|---|---|---|---|---|---|
| 1,826 | 10.97 | 4.03 | 2.68 | 74.18 | 10.49 |

Table A.6 informs that, on average, about 1.1 percent of the total MW rating of conventional generators has been lost daily due to unplanned outages. The maximum DGL was almost seven times greater than the average with 7.4 percent of the total MW rating lost on that day, January 7, 2014, the peak day of the polar vortex.[116]

Figure A.7 illustrates the daily performance of the DGL over the five-year history. The scatter plot, of the values, is shown along with a time trend-line. The daily values follow prominent seasonal pattern, which is analyzed in detail in the next section. Also clearly visible are upper outliers—days with extreme generation losses.

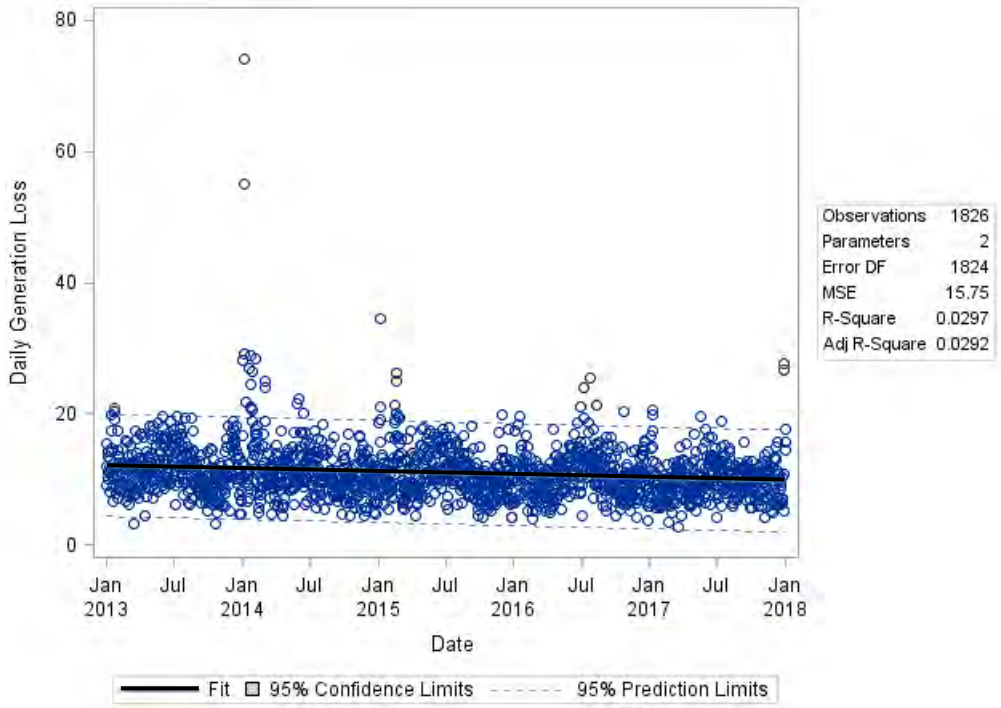



**Figure A.7: Scatter Plot of DGL with Time Trend Line (2013–2017)**

The DGL trend line has a negative slope that is highly statistically significant (p-value<0.0001). This result indicates that it is extremely unlikely that the negative slope was observed by mere chance and confirms that, on average, the daily generation system performance was improving from 2013–2017.

[116] NERC's 2014 Polar Vortex Review is can be found at the following location: https://www.nerc.com/pa/rrm/Pages/January-2014-Polar-Vortex-Review.aspx



AMERICAN OVERSIGHT
EXT-18-2615-C-000106

### *Seasonal Analysis of Generation Performance*

Figure A.7 reveals a prominent seasonality of the DGL. Further analysis of the seasonal performance confirms and quantifies differences in DGL by season.[117] Table A.7 shows the DGL descriptive statistics by season based on the 2013–2017 data.

**Table A.7: Descriptive Statistics of DGL by Season**

| Season | N | Mean | Standard Deviation | Minimum | Maximum | Median |
|---|---|---|---|---|---|---|
| Winter | 451 | 11.67 | 5.81 | 3.54 | 74.18 | 10.58 |
| Spring | 305 | 10.23 | 3.16 | 2.68 | 25.07 | 9.95 |
| Summer | 765 | 11.45 | 3.20 | 4.29 | 25.58 | 11.06 |
| Fall | 305 | 9.46 | 2.76 | 3.26 | 20.27 | 9.45 |

Seasonal differences in DGL are further illustrated in the boxplot of Figure A.8.

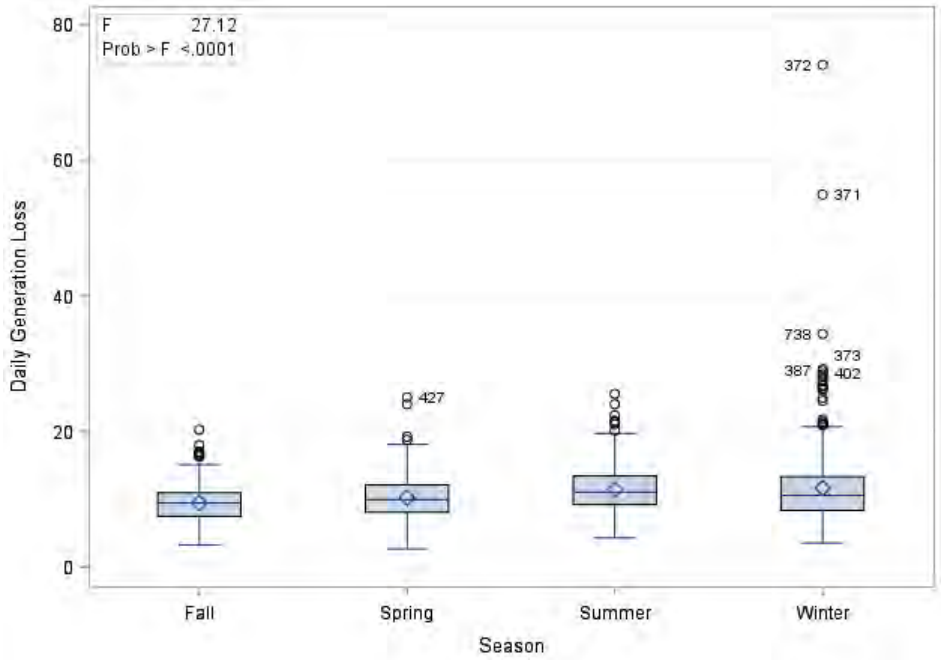



**Figure A.8: Boxplot of DGL by Season 2013–2017**

Statistical tests[118] indicate statistically significant differences among seasonal distributions of the DGL. Figure A.9 shows the mean DGL by season ordered from highest (for summer) to lowest (for fall) and summarizes results of Duncan's grouping test for the seasonal means. Each bar connects seasons with similar (not statistically significantly different) mean DGL values. Thus, differences in summer and winter DGL (connected by a blue bar) are not significant, and, on average, these seasons have similar daily generation losses; however, winter generation performance is more volatile as indicated by the largest seasonal standard deviation and illustrated by multiple outliers in Figure A.8. Fall DGL is statistically the lowest, and the spring performance is the second best.

[117] For seasonal analysis of TADS and GADS data in Appendix A, winter includes the months of January, February, and December of the same calendar year. Summer includes May through September; all other months are categorized as spring/fall.

[118] ANOVA with Fisher's Least Significant Difference test and Duncan grouping test at the significance level of 0.05.



AMERICAN OVERSIGHT
EXT-18-2615-C-000107

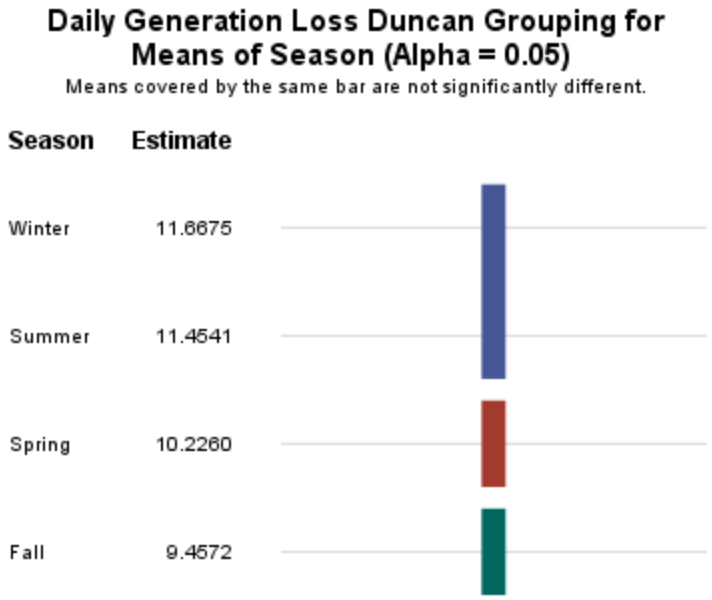



**Figure A.9: Average DGL by Season and Seasonal Grouping by Mean DGL (2013–2017)**

### *2017 Generation Performance vs. Historical Seasonal Bounds*

The detected seasonal differences motivated the analysis of the daily 2017 generation performance based on seasonal bounds for typical daily values.

**Figure A.10** shows a daily plot of the DGL score for 2017 (shown in blue) against bounds of typical seasonal performance calculated using 2013–2016 (historical) daily data. On a daily basis, a general normal range of performance exists. This normal range is defined as the 90-percent confidence interval of historical seasonal values and is visible as a band between the fifth percentile of seasonal values (orange line) and the ninety-fifth percentile of seasonal values (grey line). For each season, the historical median and mean are also shown.

AMERICAN OVERSIGHT



EXT-18-2615-C-000108

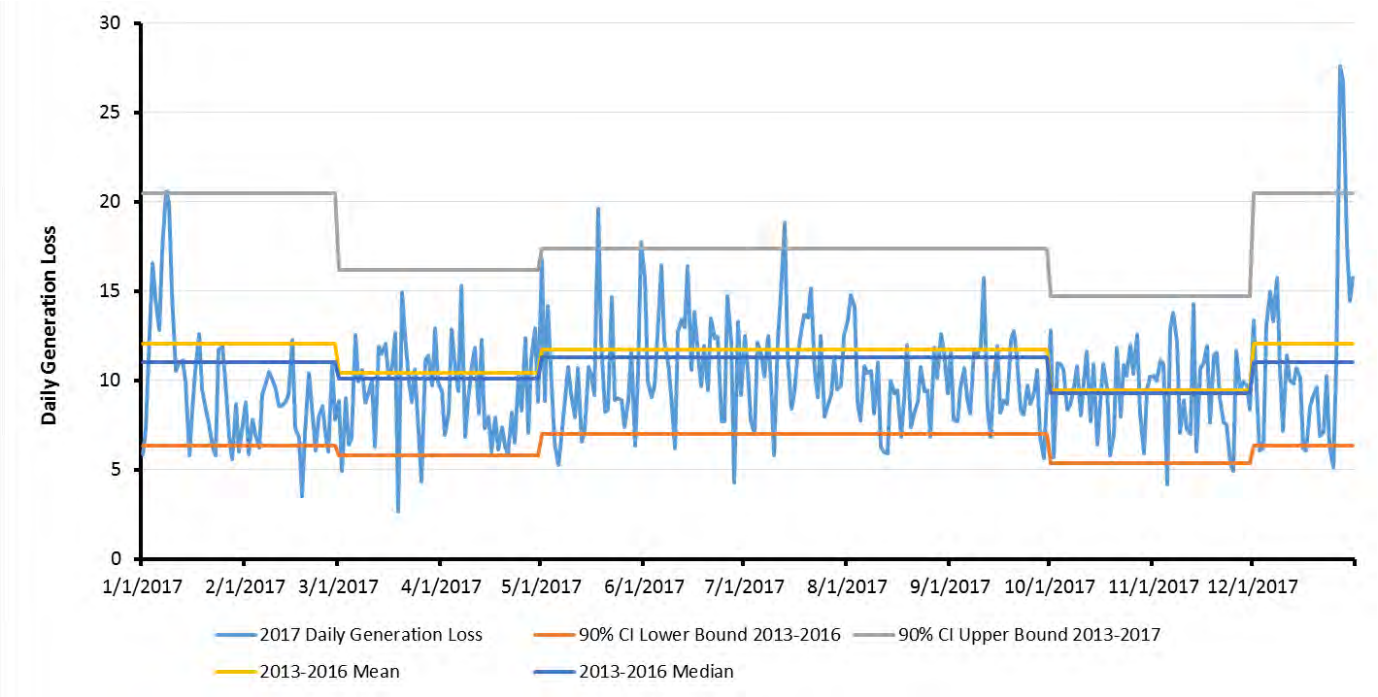



**Figure A.10: 2017 Daily Generation Loss with the 2013–2016 90-Percent Confidence Interval by Season**

Days of stress rise above the seasonal daily control limits. **Figure A.10** shows that the BPS generation performance in 2017, as measured by the DGL, had only six stress days which exceeded historical seasonal bounds (for a year similar to the historical years the expected number of the stress days is 18.25). Additionally, a total of 38 days were below the corresponding historical lower seasonal bounds. These results show an improved seasonal generation performance in 2017 as compared to the previous four years.

Of the six stress days, there were three extreme winter days that exceeded any seasonal control bound. Forced outages due to weather-related causes were clustered in groups of Regions. The following is in rank order from greatest amount of capacity reporting forced outages: 68.1 percent (48,632 MW) of the capacity reporting forced outages over the three extreme winter days was located in SERC, RF, and NPCC; 28.3 percent (20,178 MW) of the capacity reporting forced outages was located in WECC, MRO, Texas RE, and SPP RE, with the remaining 3.5 percent (2,565 MW) reported by units in FRCC.

### *Daily Generation Performance by Year*

The descriptive statistics of the annual distributions of the daily generation loss values are listed in **Table A.8**.

**Table A.8: Descriptive Statistics of DGL by Year**

| Year | N | Mean | Standard Deviation | Minimum | Maximum | Median |
|---|---|---|---|---|---|---|
| 2013 | 365 | 11.58 | 3.40 | 3.26 | 20.92 | 11.16 |
| 2014 | 365 | 11.60 | 5.73 | 4.35 | 74.18 | 10.61 |
| 2015 | 365 | 10.99 | 3.77 | 4.14 | 34.41 | 10.49 |
| 2016 | 366 | 10.67 | 3.33 | 3.77 | 25.58 | 10.52 |
| 2017 | 365 | 9.99 | 3.14 | 2.68 | 27.61 | 9.71 |

AMERICAN OVERSIGHT



EXT-18-2615-C-000109

The year-over-year differences in transmission performance and a 2017 improved performance are further illustrated in the boxplot of **Figure A.11**.

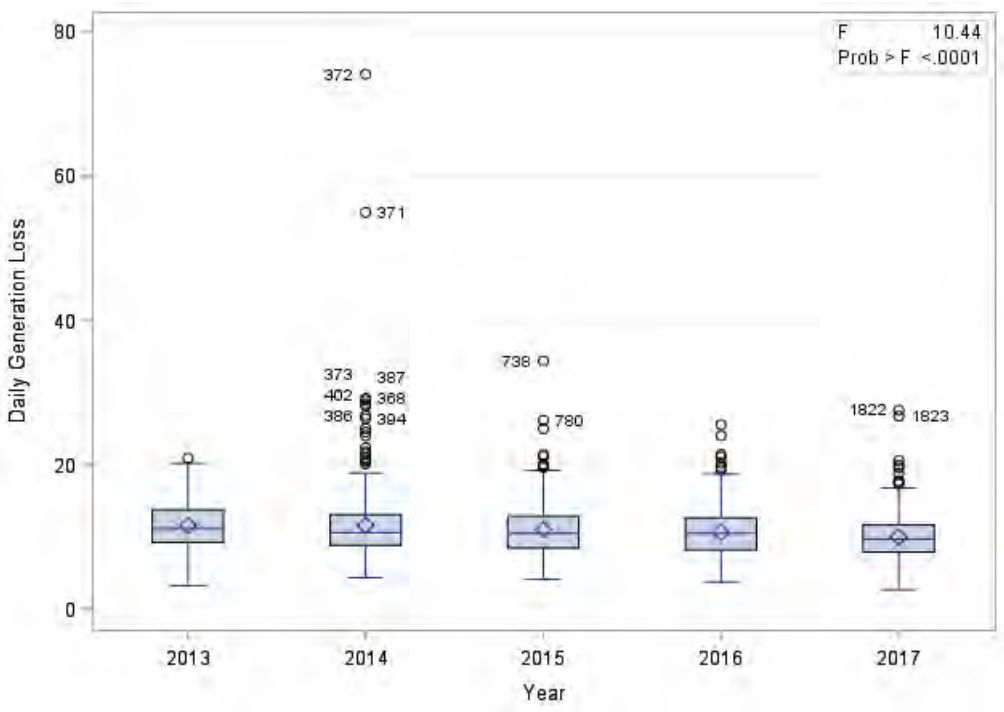



**Figure A.11: Boxplot of Daily Generation Loss by Year (2013–2017)**

**Table A.8** and **Figure A.11** indicate that the 2017 generation performance was the best as measured by the mean and median as well as smaller variability of values as measured by the standard deviation.

Statistical tests[119] found statistically significant differences among annual distributions of the DGL. **Figure A.12** shows the mean DGL by year ordered from highest (in 2014) to lowest (in 2017) and summarizes results of Duncan's grouping test for the annual means. Each bar connects years with similar (not statistically significantly different) mean DGL values. Thus, differences in 2014 and 2013 DGL (connected by a blue bar) are not significant, and, on average, these years had similar daily generation losses. The 2017 DGL was statistically significantly lower than for the previous four years.

[119] ANOVA with Fisher's Least Significant Difference test and Duncan grouping test at the significance level of 0.05.



AMERICAN OVERSIGHT
EXT-18-2615-C-000110

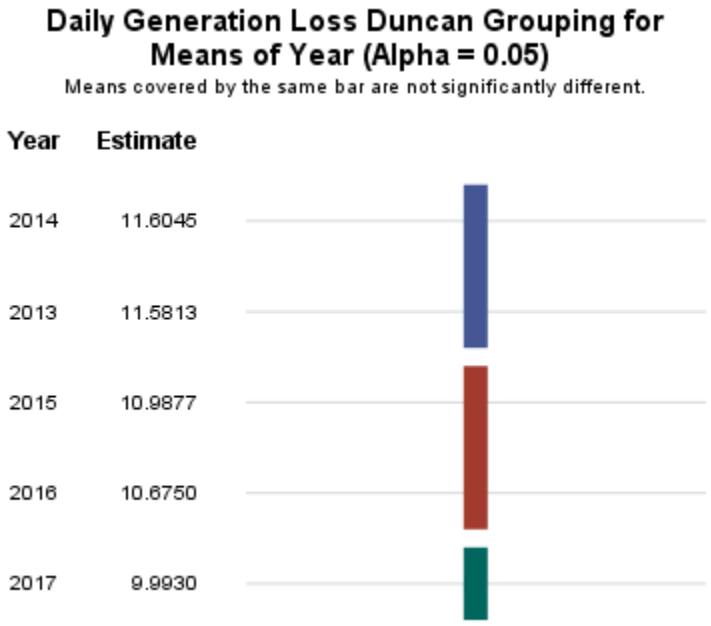



**Figure A.12: Average DGL by Year and Grouping by Mean DGL (2013–2017)**

The results provided in the previous four sections of this appendix lead to the conclusion that BPS generation performance improved significantly in 2017.

AMERICAN OVERSIGHT



EXT-18-2615-C-000111

# Appendix B: Statistical Analysis of Transmission Data

This appendix provides an analysis of TADS outage events based on their TADS outage initiating or sustained cause(s) with an impact of an event defined as its transmission outage severity given by **Equation B.1**.

## Study Method

The following four sections provide a description of the data analysis methodology used in this appendix to rank transmission outage causes by risk to the transmission system and track TADS data changes by year. The final section in this appendix provides TADS event statistics by year.

### Defining BPS Impact from Transmission Risk

The impact of a TADS event to BPS reliability is called the TOS of the event. A TADS event TOS is defined by either **Equations B.1** or **Equation B.2**, depending on the element types included. The equations are aligned to the definition of transmission component of the SRI. **Equation B.1** is used for TADS studies involving ac circuit outage events; **Equation B.2** is applied to TADS studies involving both ac circuit and transformer outage events. The severity of a transmission outage is calculated based on its estimated contribution of power flow capacity through TADS transmission element based on voltage class. The average power flow MVA values or equivalent MVA values are shown in **Table B.1**. These equivalent MVA values are also applied to the denominator of the TOS equation to normalize the function. For normalization, the denominator in **Equation B.1** is defined as the sum of the equivalent MVA's of TADS ac circuit inventory for the same year as the event; similarly, the denominator in **Equation B.2** is defined as the sum of the equivalent MVA's of TADS ac circuit and transformer inventory for the same year as the event. This allows comparison of TADS events across years while taking into account the changing number of ac circuits and transformers within the BPS.

$$Transmission\ Outage\ Severity\ (TADS\ AC\ circuit\ outage\ event) = \frac{\sum(Equivalent\ MVA\ of\ AC\ Circuits\ with\ automatic\ outages\ in\ this\ event\ )}{\sum(Equivalent\ MVA\ of\ ALL\ AC\ Circuits\ in\ TADS\ inventory)} \cdot 1000$$

**Equation B.1**

$$Transmission\ Outage\ Severity\ (TADS\ AC\ circuit\ or\ Transformer\ outage\ event) = \frac{\sum(Equivalent\ MVA\ of\ AC\ Circuits\ and\ Transformers\ with\ sustained\ automatic\ outages\ in\ this\ event\ )}{\sum(Equivalent\ MVA\ of\ ALL\ AC\ Circuits\ and\ Transformers\ in\ TADS\ inventory)} \cdot 1000$$

**Equation B.2**

**Table B.1: Equivalent MVA Values of TADS Elements**

| Voltage Class | AC Circuits | Transformers |
|---|---|---|
| 100–199 kV | 200 | 100 |
| 200–299 kV | 700 | 259 |
| 300–399 kV | 1,300 | 518 |
| 400–599 kV | 2,000 | 1,034 |
| 600–799 kV | 3,000 | 1,441 |

AMERICAN OVERSIGHT



EXT-18-2615-C-000112

## Impact of the TADS Data Collection Changes

Beginning in 2015, the reporting changed through the NERC Rules of Procedure 1600 Data Request so that TADS data collection would align with the implementation of the FERC approved BES definition.[120] Two additional voltage classes were amended, namely, less than 100 kV and 100–199 kV.

TADS provides information to classify automatic outages as momentary or sustained.[121] A momentary outage is defined as an automatic outage with an outage duration of less than one minute. If the circuit recloses and trips again within less than a minute of the initial outage, it is only considered one outage. The circuit would need to remain in service for longer than one minute between the breaker operations to be considered two outages. A Sustained Outage[122] is defined as an automatic outage with an outage duration of a minute or greater.

Changes to TADS data collection had an impact on existing metrics and provides for expanded analysis. **Table B.2** illustrates the ac circuit data collected at the various voltage classes available to support outage metrics. For example, discontinuation of the non-automatic planned outage data no longer supports a total outage availability (or unavailability) metric. Sustained outages are the only common outages collected at all voltage classes above and below 200 kV.

**Table B.2: TADS BES Outage Data Collection by AC Voltage Class (Effective Jan 1, 2015)**

| AC Voltage Class | Automatic Outages | | NonAutomatic Outages | |
|---|---|---|---|---|
| | Sustained | Momentary | Planned | Operational |
| Below 100 kV | Yes | No | No | No |
| 100–199 kV | Yes | No | No | No |
| 200–299 kV | Yes | Yes | No | Yes |
| 300–399 kV | Yes | Yes | No | Yes |
| 400–599 kV | Yes | Yes | No | Yes |
| 600–799 kV | Yes | Yes | No | Yes |

| Legend | |
|---|---|
| Yes | Outage data collected for this type of outage and voltage class |
| No | Outage data not collected for this type of outage and voltage class |

In this Appendix, the following TADS study cases were analyzed by ICC or SCC:

1. TADS sustained and momentary events for 200 kV+ ac circuits (2013–2017) analyzed by ICC
2. TADS common or dependent mode (CDM) events for 200 kV+ ac circuits (2013–2017) analyzed by ICC
3. RE transmission analysis of momentary and sustained events of 200 kV+ ac circuits (2013–2017) by ICC
4. TADS sustained events of 100 kV+ ac circuits and transformers[123] (2015–2017) analyzed by ICC

[120] The FERC approved BES definition can be found at the following location: http://www.nerc.com/pa/RAPA/Pages/BES.aspx
[121] TADS information on automatic outages can be found at the following location: http://www.nerc.com/pa/RAPA/tads/Pages/default.aspx.
[122] The TADS definition of Sustained Outage is different from the NERC *Glossary of Terms* used in *Reliability Standards* definition of Sustained Outage that is presently only used in FAC-003-1. The glossary defines a Sustained Outage as follows: "The de-energized-energized condition of a transmission line resulting from a fault or disturbance following an unsuccessful automatic reclosing sequence and/or unsuccessful manual reclosing procedure." The definition is inadequate for TADS reporting for two reasons. First, it has no time limit that would distinguish a sustained outage from a momentary outage. Second, for a circuit with no automatic reclosing, the outage would not be "counted" if the TO has a successful manual reclosing under the glossary definition.
[123] Transformer voltages are determined based on the element's secondary voltage.

AMERICAN OVERSIGHT

EXT-18-2615-C-000113

5. Sustained cause code and ICC-SCC study for sustained outages of 100 kV+ ac circuits (2015–2017).

The less than 200 kV sustained automatic outage data set was not included in Study 1–3 to allow for a valid year-over-year comparative analysis of the 200 kV+ data set for the years 2013–2017. In studies 1–3 and 5, the TOS of TADS events is calculated by using **Equation B.1**. In Study 4 it is calculated by using **Equation B.2**.

## Determining Initiating Causes and Modification Method

TADS collects automatic outages[124] and operational outages.[125] A TADS event is a transmission incident that results in the automatic outage (sustained or momentary) of one or more elements. TADS events are categorized by ICC. These ICCs facilitate the study of cause-effect relationships between each event's ICC and event severity. The procedure illustrated in **Figure B.1** is used to determine a TADS event's ICCs. The procedure that defines ICCs for a TADS event allows ICC assignment to a majority of transmission outage events recorded in TADS.

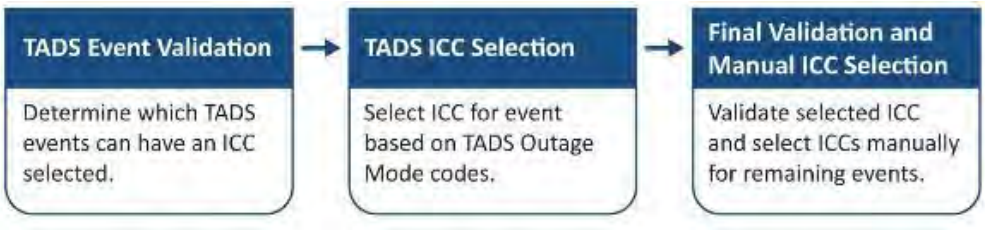



**Figure B.1: TADS Event Initiating Cause Code Selection Procedure**

The *State of Reliability 2013–2017* reports included analysis based on an augmented data set that defined changes in ICCs to further distinguish normal clearing events from abnormal clearing events. Two TADS ICCs are impacted: Human Error and Failed Protection System Equipment.

- TADS Human Error ICC is subdivided by type codes, which first became available in 2012. Using the type codes in the consequent *State of Reliability* reports, data for two specific type codes related to protection system misoperations have been removed from the Human Error ICC and added to the Failed Protection System Equipment ICC. Those type codes are 61, dependability[126] (failure to operate), and 62, security[127] (unintended operation).
- TADS Failed Protection System Equipment ICC, plus the Human Error type code 61 and 62 data, are added together in a new or augmented ICC labeled "Misoperation" in each *State of Reliability* report.

Note: in this appendix, references to ICC mean the augmented ICC as described above.

## Determining Relative Risk

The process of the statistical analysis (performed to identify top causes to transmission risk) is demonstrated in **Figure B.2** Steps 1–4; after preliminary steps of assigning ICC's to TADS events, described in the previous section, and

[124] This is an outage that results from the automatic operation of a switching device, causing an element to change from an in-service state to a not in-service state. Single-pole tripping, followed by successful ac single-pole (phase) reclosing, is not an automatic outage.

[125] This is a nonautomatic outage for the purpose of avoiding an emergency (i.e., risk to human life, damage to equipment, damage to property) or to maintain the system within operational limits and that cannot be deferred. This includes nonautomatic outages resulting from manual switching errors.

[126] Event Type 61 Dependability (failure to operate): one or more automatic outages with delayed fault clearing due to failure of a single protection system (primary or secondary backup) under either of these conditions:

- Failure to initiate the isolation of a faulted power system element as designed or within its designed operating time
- In the absence of a fault, failure to operate as intended within its designed operating time

[127] Event Type 62 Security (unintended operation): one or more automatic outages caused by improper operation (e.g., overtrip) of a protection system resulting in isolating one or more TADS elements it is not intended to isolate, either during a fault or in the absence of a fault.

AMERICAN OVERSIGHT



EXT-18-2615-C-000114

calculation of a TOS for every event by using **Equation B.1** or **Equation B.2,** NERC staff proceeded to determine relative risks of ICCs and ranked them by contribution to the total TOS of TADS events.

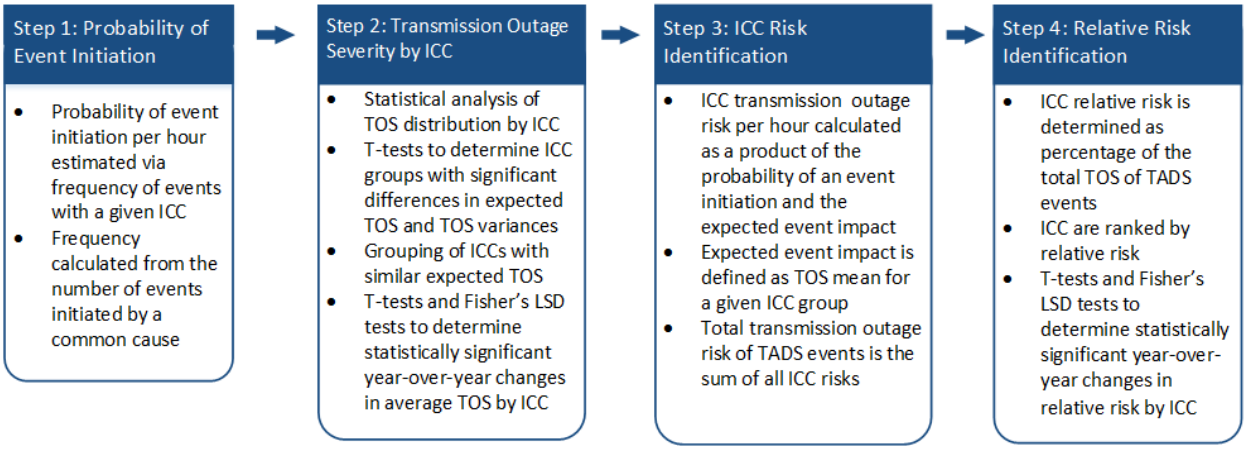



**Figure B.2: Transmission Outage Risk Identification Method**

First, the probability that an event from a given group initiates during a given hour was estimated from the frequency of the events of each type without taking into account the event duration. Then, distributions of TOS were examined for all TADS events and separately for events with a given ICC. A series of t-tests[128] were performed to compare the expected TOS of a given ICC with the expected outage severity of the rest of the events at significance level of 0.05. Then the Fisher's Least Significant Difference[129] method was applied to determine statistically significant[130] differences in the expected TOS for all pairs of ICCs. Next, Duncan's grouping test[131] found clusters of ICC groups with similar expected TOS values.

Statistically significant differences in the expected TOS for each ICC group were analyzed for each year of data. This showed if the average TOS for a given ICC group had changed over time.

The relative risk was calculated for each ICC group. The impact of an outage event was defined as the expected TOS associated with a particular ICC group. The risk per hour of a given ICC was calculated as the product of the probability per hour and the expected severity (impact) of an event from this group. The relative risk was then defined as the percentage of the risk associated with each ICC out of the total (combined for all ICC events) risk per hour.

## TADS Event Statistics by Year

Table B.3 provides the information about the number of transmission outage events analyzed in Appendix B. There are 18,693 momentary and sustained 200 kV+ ac circuit events included in the analysis done for Studies 1–3 (shown in the following sections). These studies include a five-year range of data from 2013–2017. There are 19,548 sustained 100 kV+ ac circuit and/or transformer events analyzed for Studies 4 and 5 (shown in the following sections). As momentary outage data are not available for 100–199 kV circuits, these studies only include the impact of sustained outages. It should also be noted that the number of ac circuit and transformer events does not equate to the sum of the two individual values combined due to events including both ac circuits and transformers.

[128] For t-test, see D. C. Montgomery and G. C. Runger, Applied Statistics and Probability for Engineers. Fifth Edition. 2011. John Wiley & Sons. Pp. 361–369.
[129] For Fisher's Least Significance Difference (LSD) method or test, see D. C. Montgomery and G. C. Runger, Applied Statistics and Probability for Engineers. Fifth Edition. 2011. John Wiley & Sons. Pp. 524–526.
[130] At significance level of 0.05
[131] D. B. Duncan. Multiple Range and Multiple F-tests. *Biometrics,* V.11, No.1, March 1955, pp.1–42.

AMERICAN OVERSIGHT

EXT-18-2615-C-000115

| Table B.3: TADS Automatic Outage Event Summary (2013–2017) | | | | | | |
|---|---|---|---|---|---|---|
| **Summary** | **2013** | **2014** | **2015** | **2016** | **2017** | **2013–2017** |
| Number of Momentary and Sustained 200 kV+ AC Circuit TADS Events | 3,762 | 3,434 | 3,772 | 3,935 | 3,790 | 18,693 |
| Number of Sustained 100 kV+ AC Circuit TADS Events | N/A | N/A | 6,155 | 6,105 | 6,370 | 18,630 |
| Number of Sustained 100 kV+ Transformer TADS Events | N/A | N/A | 445 | 459 | 502 | 1,406 |
| Number of Sustained 100 kV+ AC Circuit and Transformer TADS Events* | N/A | N/A | 6,456 | 6,404 | 6,688 | 19,548 |
| * Value does not equal sum of 100 kV+ ac circuit plus 100 kV+ transformer events due to overlap in element involvement. | | | | | | |

# Study 1: TADS Sustained and Momentary Events for 200 kV+ AC Circuits

## Events with Common ICC by Year and Estimates of Event Probability

Table B.4 lists annual counts and hourly event probability of 200 kV+ ac circuit automatic outage events by ICC and for all ICC combined. From 2013–2017, a total of 18,693 events were reported, including 8,457 momentary (45 percent of total) events and 10,236 (55 percent of total) sustained events. In Study 1–3 momentary and sustained events are analyzed together.

Almost all TADS ICC groups have sufficient number of events to be used in a statistical year-to-year analysis.[132] Only three ICCs (Vegetation; Vandalism, Terrorism, or Malicious Acts; and Environmental) do not have sufficient size for reliable statistical inferences. Therefore, these ICC groups are combined into a new group, named "Combined Smaller ICC Groups" that can be statistically compared to every other group and also studied with respect to annual changes of TOS.

For TADS events initiated by a common cause, the probability of observing the initiation of an event during a given hour (listed in the last column of Table B.4.) is estimated by using the corresponding historical event occurrences reported in TADS.[133] The reciprocal of the overall event initiation frequency of 0.427 per hour indicates that in NERC's defined BES system of 200 kV+ ac circuits the automatic outage event started, on average, every 2 hours and 20 minutes.

| Table B.4: TADS 200 kV+ AC Circuit Events and Hourly Event Probability by ICC (2013–2017) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Initiating Cause Code** | **2013** | **2014** | **2015** | **2016** | **2017** | **2013–2017** | **Event Initiation Probability/Hour** |
| Unknown | 771 | 766 | 888 | 777 | 732 | 3,934 | 0.090 |
| Lightning | 830 | 681 | 817 | 730 | 664 | 3,722 | 0.085 |
| Weather, Excluding Lightning | 444 | 447 | 536 | 638 | 655 | 2,720 | 0.062 |
| Failed AC Circuit Equipment | 252 | 223 | 272 | 358 | 300 | 1,405 | 0.032 |

[132] A size of the dataset should be sufficient to apply the Central Limit Theorem for the annual sample means (40 or more observations).

[133] Probability is estimated using event occurrence frequency of each ICC type without taking into account the event duration. Namely, the event occurrence probability is the total number of occurrences for a given type of event observed during the historical data period divided by the total number of hours in the same period. Therefore, the sum of the estimated probabilities over all ICCs is equal to the estimated probability of any event during a given hour.

AMERICAN OVERSIGHT



EXT-18-2615-C-000116

| Table B.4: TADS 200 kV+ AC Circuit Events and Hourly Event Probability by ICC (2013–2017) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Initiating Cause Code** | **2013** | **2014** | **2015** | **2016** | **2017** | **2013–2017** | **Event Initiation Probability/Hour** |
| Misoperation | 303 | 319 | 223 | 251 | 232 | 1,328 | 0.030 |
| Foreign Interference | 191 | 222 | 260 | 254 | 220 | 1,147 | 0.026 |
| Contamination | 163 | 149 | 163 | 290 | 276 | 1,041 | 0.024 |
| Failed AC Substation Equipment | 197 | 226 | 232 | 208 | 162 | 1,025 | 0.023 |
| Human Error (w/o Type 61 OR Type 62) | 213 | 150 | 140 | 151 | 126 | 780 | 0.018 |
| Fire | 154 | 42 | 66 | 72 | 196 | 530 | 0.012 |
| Power System Condition | 107 | 85 | 57 | 82 | 105 | 436 | 0.010 |
| Other | 84 | 75 | 82 | 78 | 59 | 378 | 0.009 |
| **Combined Smaller ICC Groups** | 53 | 49 | 36 | 46 | 63 | 247 | 0.006 |
| *Vegetation* | 36 | 39 | 30 | 33 | 45 | 183 | 0.004 |
| *Vandalism, Terrorism, or Malicious Acts* | 9 | 8 | 2 | 7 | 7 | 33 | 0.001 |
| *Environmental* | 8 | 2 | 4 | 6 | 11 | 31 | 0.001 |
| **All Events** | **3,762** | **3,434** | **3,772** | **3,935** | **3,790** | **18,693** | **0.427** |

The six largest ICC groups combined amount to 76 percent of TADS events for the most recent five years. ICC Unknown is the biggest group of events with 21 percent of the events from 2013–2017.

This increased number of events with the Fire ICC in 2013 and 2017 were caused by high numbers of wildfires and largely should not be attributed to causes that are directly preventable by utilities.

In 2017, there was a significant decrease in the number of events for a majority of ICC groups (Unknown, Lightning, Failed AC Circuit Equipment, Misoperation, etc.,) reflected in an overall decrease in the number of outage events (a decrease of four percent from 2016 to 2017). In contrast, ICC groups Fire, Combined smaller ICC groups, and Power System Condition significantly increased from 2016 to 2017.

The number of events initiated by Vegetation increased from 33 in 2016 to 45 events in 2017.[134]

## TOS by ICC

Using the TOS measure and TADS event ICCs, NERC staff statistically analyzed the most recent five years of TADS data (2013–2017).[135] The distribution of TOS was studied separately for events with a given ICC and the complete dataset for the five years combined.

[134] In response to ineffective vegetation management, as identified as a major cause of the August 14, 2003, blackout, NERC developed and has since updated a vegetation management Reliability Standard (FAC-003-4 is the latest versions). TADS contains all transmission outages of the BPS elements caused by vegetation. FAC-003-4 has a different sustained outage definition than TADS, concerns a smaller voltage level population, and deals only with limited and specific outages such as those caused by vegetation "fall-ins." Confusion between the two data sets should be avoided.

[135] All statistical tests in Study 1 are performed at the significance level alpha = 0.05.

AMERICAN OVERSIGHT



EXT-18-2615-C-000117

The average TOS of the 2013–2017 automatic outage events of the 200 kV+ ac circuits is 0.12, the median TOS is 0.07, and a sample deviation is 0.07. The largest TOS of 2.75 was observed on August 5, 2013, in a NPCC event initiated by Lightning with outages on nine 600–799 kV ac circuits.

Next, statistical tests are performed to determine statistically significant differences in the average TOS between ICC groups. The TOS averages (means) by ICC are shown in **Figure B.3**. A series of the t-tests reveals that each of groups of events initiated by Fire, Misoperation, Failed AC Substation Equipment, Power System Condition, Contamination, and Human Error has statistically greater expected outage severity than other events.[136] This means that, when an event initiated by one of these causes occurs it is expected to have a greater impact and a higher risk to the transmission system. The tests on homogeneity of variances find statistically greater variances (and the standard deviations) for the same ICC groups except Contamination as compared with other events. The greater variance can signify additional risk since it implies more frequent occurrences of events with high TOS.

Further t-tests indicate that each of the ICC groups Foreign Interference, Combined Smaller ICC groups, Failed AC Circuit Equipment, Weather (Excluding Lightning), and Unknown has statistically smaller expected outage severity than other events.[137] Finally, events initiated by Lightning and Other do not have a significant difference in outage severity with other events, and therefore are expected to have an average dataset TOS when happen.[138]

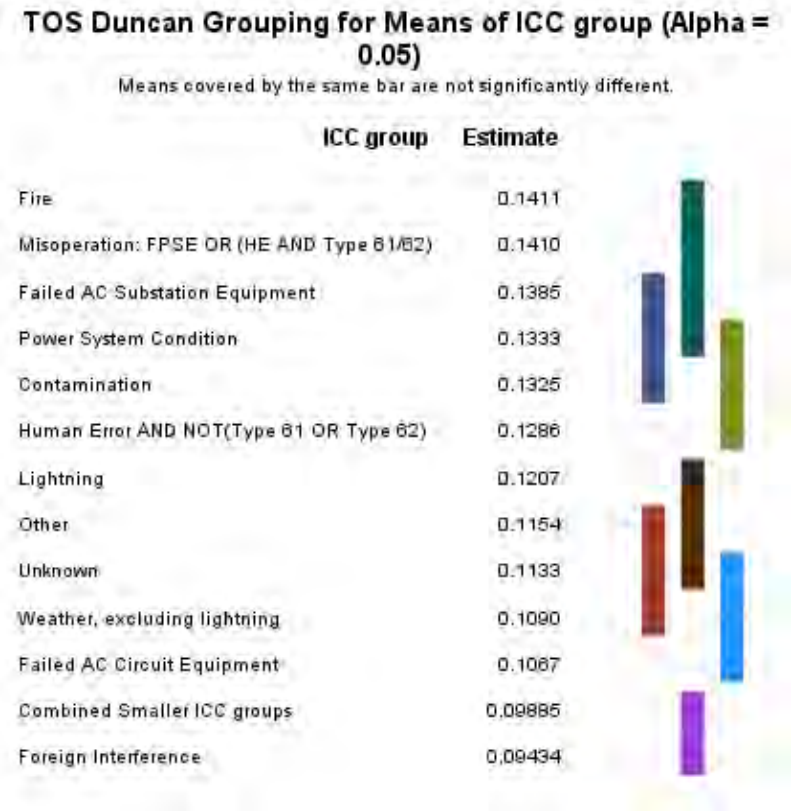



**Figure B.3: TOS of 200 kV+ AC Circuit Outage Events by ICC and ICC grouping by Expected TOS (2013–2017)**

[136] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, confirms that these ICCs have a statistically significant positive correlation with TOS.
[137] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, confirms that these ICCs have a statistically significant negative correlation with TOS.
[138] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, confirms that ICCs Lightning and Other have no significant correlation with TOS.

AMERICAN OVERSIGHT

EXT-18-2615-C-000118

Figure B.3 shows the mean TOS by ICC ordered from highest to lowest and summarizes results of Duncan's grouping test for the TOS means. Each bar connects ICC groups with similar (not statistically significantly different) expected TOS. For example, differences in TOS between events initiated by Lightning, Other, and Unknown, connected by a brown bar, are not significant, meaning that individual impacts of events from these groups (the expected TOS) are similar.

## Average TOS by ICC: Annual Changes

Year-over-year changes in calculated TOS for 200 kV+ ac circuit events by ICC are reviewed next. Figure B.4 shows changes in the average TOS for each ICC for the 2013–2017 dataset. The groups of ICC events are listed from left to right by descending average TOS for the five years combined (the average TOS are listed in Figure B.3). The largest average TOS over the five-year period was observed for events initiated by Fire, mostly due to the very high average TOS in the year 2013. The unusually high severity of Fire events can be contributed to a particular string of events that occurred in Canada, putting a number of high voltage elements out of service repeatedly.

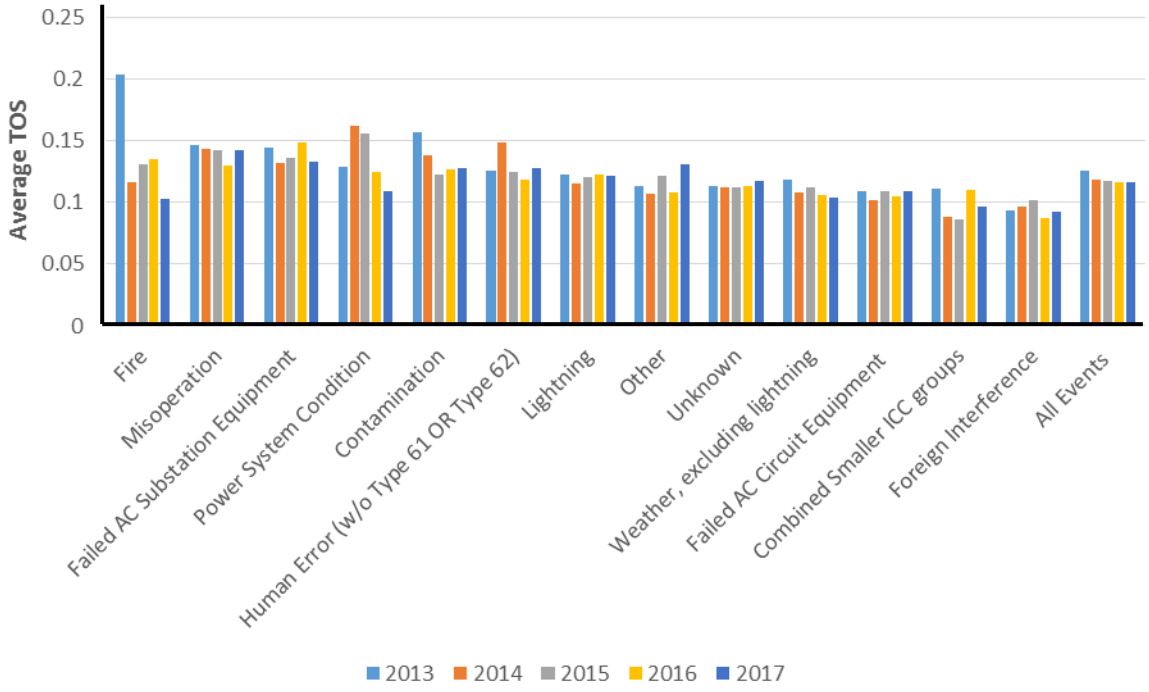



**Figure B.4: Average TOS of 200 kV+ AC Circuit Events by ICC and Year (2013–2017)**

A series of Fisher's Least Significant Difference tests allowed to identify statistically significant year-over-year changes in TOS by ICC and for all event combined. In 2017, the average TOS statistically significantly decreased for ICCs:

- **Fire:**[139] compared with 2013, 2015, 2016
- **Power System Condition:** compared with 2014 and 2015
- **Contamination:** compared with 2013
- **Weather, Excluding Lightning:** compared with 2013 and 2015
- **Foreign Interference:** compared with 2015

In 2017 the average TOS statistically significantly increased for ICCs:

[139] Although the number of Fire initiated events was higher in 2017 than in previous years, the severity of the individual events was much lower, causing the overall TOS due to Fire events to be the lowest within the studied data set.


AMERICAN OVERSIGHT
EXT-18-2615-C-000119

- **Other:** compared with 2014
- **Unknown:** compared with 2014 and 2015

There were no significant changes for other ICC groups in 2017. For all events combined, the average TOS in 2013 was statistically greater than in 2014–2017, and for 2014–2017 the TOS had, on average, no significant changes.

## TOS Risk and Relative Risk of 200 kV+ AC Circuit Outage Events by ICC

The risk of each ICC group can be defined as the total TOS associated with this group. Its relative risk is equal to the percentage of the group TOS in the 2013–2017 database. The risk of a given ICC per hour can be defined as the product of the probability that an event with this ICC initiates during an hour and the expected TOS (impact) of an event from this group.[140]

Relative risk of the 2013–2017 TADS 200 kV+ ac circuit events by ICC is listed in **Table B.5** in decreasing order. Lightning and Unknown are two ICCs with the largest relative risk of more than 20 percent of the total five-year TOS each. Events initiated by Lightning have a small expected individual TOS but they happened more frequently than events with other ICCs. Similarly, ICC Unknown initiates events with an average expected TOS but very frequently. Fire has a low rank with respect to relative risk despite having the largest average TOS of an individual event due to small number of events with this ICC, and, respectively, their low probability.

**Table B.5: Relative Risk of TADS AC Circuit 200 kV+ Events by ICC (2013–2017)**

| Group of TADS events | Probability that an Event from a Group Starts during a Given Hour | Expected Impact (Expected TOS of an Event) | Risk Associated with a Group per Hour | Relative Risk by Group |
|---|---|---|---|---|
| **All TADS events 200 kV+** | 0.427 | 0.119 | 0.051 | 100.0% |
| Lightning | 0.085 | 0.121 | 0.010 | 20.2% |
| Unknown | 0.090 | 0.113 | 0.010 | 20.1% |
| Weather, Excluding Lightning | 0.062 | 0.109 | 0.007 | 13.4% |
| Misoperation | 0.030 | 0.141 | 0.004 | 8.4% |
| Failed AC Circuit Equipment | 0.032 | 0.107 | 0.0034 | 6.8% |
| Failed AC Substation Equipment | 0.023 | 0.139 | 0.0032 | 6.4% |
| Contamination | 0.024 | 0.132 | 0.0031 | 6.2% |
| Foreign Interference | 0.026 | 0.094 | 0.0025 | 4.9% |
| Human Error (w/o Type 61 OR Type 62) | 0.018 | 0.129 | 0.0023 | 4.5% |
| Fire | 0.012 | 0.141 | 0.0017 | 3.4% |
| Power System Condition | 0.010 | 0.133 | 0.0013 | 2.6% |
| Other | 0.009 | 0.115 | 0.0010 | 2.0% |
| Combined Smaller ICC groups | 0.006 | 0.099 | 0.0006 | 1.1% |

[140] The probability that an event from a given ICC group initiates during a given hour is listed in **Table B.4**, and the expected TOS by ICC are shown in **Figure B.3**. For any ICC group, the relative risk per hour is the same as the relative risk for a year (or any other time period) if estimated from the same dataset.

AMERICAN OVERSIGHT



EXT-18-2615-C-000120

Figure B.5 shows year-over-year changes in the relative risk of TADS events by ICC. The groups of ICC events are listed from left to right by descending relative risk for years 2013–2017 combined. The top contributor to transmission risk, Lightning, had a decrease in relative risk in 2016 due to a decrease in the number (and the frequency) of events as reflected in Table B.4. The relative risk of Unknown slightly increased from 2016 to 2017 because of an increase in the average TOS of this group but it still remained below the 2015 and 2016 levels. In contract, Weather, Excluding Lightning, had consecutive year-to-year increases from 2013–2017.

The relative risk of Misoperation stayed essentially flat over 2015–2017 after significant decrease from 2014 to 2015. Also, there was a significant decrease in the relative risk for the ICC Failed AC Circuit Equipment due to significant reduction in the frequency of these events in 2017.

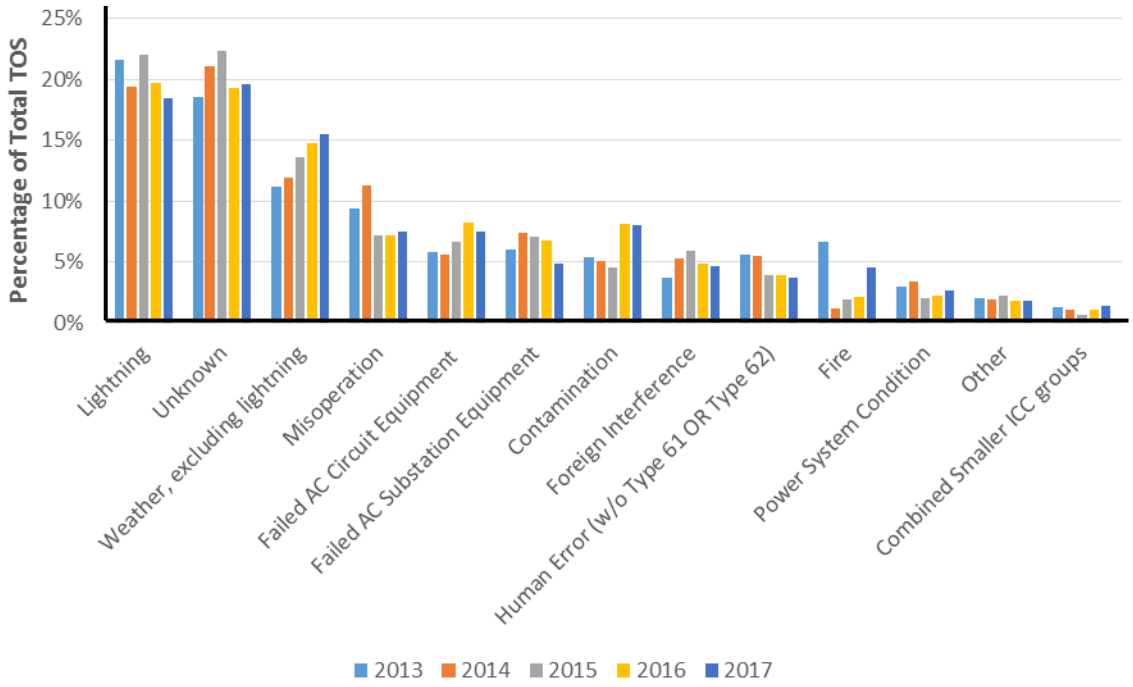



**Figure B.5: Relative TOS Risk 200 kV+ AC Circuit Outage Events by ICC and Year (2013–2017)**

# Study 2: TADS Sustained and Momentary CDM Events for 200 kV+ AC Circuits

## CDM Event ICC Analysis (2013–2017)

TADS provides information to classify outages as Single Mode or CDM events. A Single-Mode event is defined as a TADS event with a single-element outage. CDM events result in multiple transmission element outages where all outages have one of the mode codes (other than Single Mode) as described in Table B.6. Typically, these TADS events have a higher TOS than TADS events with a Single-Mode outage. It is important to monitor and investigate CDM events due to their increased risk to system reliability.

| Table B.6: Outage Mode Codes | |
|---|---|
| **Outage Mode Code** | **Automatic Outage Description** |
| Single Mode | A single-element outage that occurs independently of another automatic outage |

AMERICAN OVERSIGHT



EXT-18-2615-C-000121

| Table B.6: Outage Mode Codes | |
|---|---|
| **Outage Mode Code** | **Automatic Outage Description** |
| Dependent Mode Initiating | A single-element outage that initiates at least one subsequent element automatic outage |
| Dependent Mode | An automatic outage of an element that occurred as a result of an initiating outage, whether the initiating outage was an element outage or a non-element outage |
| Common Mode | One of at least two automatic outages with the same ICC where the outages are not consequences of each other and occur nearly simultaneously |
| Common Mode Initiating | A common-mode outage that initiates one or more subsequent automatic outages |

Table B.7 lists numbers of CDM events of 200 kV+ ac circuits by ICC for 2013–2017. There was a total of 2,581 CDM events. The reciprocal of the probability of 0.059 CDM events per hour indicates that in NERC's defined BES system of 200 kV+ ac circuits a CDM event started, on average, every 16 hours and 59 minutes. CDM events comprise 13.8 percent of all TADS 200 kV+ ac circuit events from 2013–2017. The largest group of CDM events was initiated by Misoperations followed by Failed AC Substation Equipment (18 and 15 percent of the CDM events, respectively).

Table B.7 also provides the population percentage of CDM events in the different ICC groups. These percentages vary greatly—from 3.9 percent of CDM events among events initiated by Contamination to 38.8 percent of events initiated by Failed AC Substation Equipment.

**Table B.7: CDM Events 200 kV+ AC Circuits and Hourly Event Probability by ICC (2013–2017)**

| Initiating Cause Code | CDM Events | ALL TADS Events 200 kV+ | CDM as Percent of ALL | CDM Event Initiation Probability/Hour |
|---|---|---|---|---|
| Misoperation | 471 | 1,328 | 35.5% | 0.011 |
| Failed AC Substation Equipment | 398 | 1,025 | 38.8% | 0.009 |
| Lightning | 369 | 3,722 | 9.9% | 0.008 |
| Unknown | 244 | 3,934 | 6.2% | 0.006 |
| Weather, Excluding Lightning | 225 | 2,720 | 8.3% | 0.005 |
| Human Error (w/o Type 61 OR Type 62) | 182 | 780 | 23.3% | 0.004 |
| Failed AC Circuit Equipment | 163 | 1,405 | 11.6% | 0.004 |
| Power System Condition | 162 | 436 | 37.2% | 0.004 |
| Foreign Interference | 116 | 1,147 | 10.1% | 0.003 |
| Other | 115 | 378 | 30.4% | 0.003 |
| Fire | 75 | 530 | 14.2% | 0.002 |
| Contamination | 41 | 1,041 | 3.9% | 0.001 |
| Combined Smaller ICC groups | 20 | 247 | 8.1% | 0.0005 |
| *Vegetation* | 8 | 183 | 4.4% | 0.0002 |
| *Environmental* | 7 | 31 | 22.6% | 0.0002 |
| *Vandalism, Terrorism, or Malicious Acts* | 5 | 33 | 15.2% | 0.0001 |
| **TADS events** | **2,581** | **18,693** | **13.8%** | **0.059** |

AMERICAN OVERSIGHT



EXT-18-2615-C-000122

Annual datasets of CDM events do not have enough observations to track statistically significant year-over-year changes in TOS. Upon combining the three smallest ICC groups (Vegetation; Environmental; and Vandalism, Terrorism, or Malicious Acts) into a new group (Combined Smaller ICC groups), the five-year ICC groups are used for the comparative statistical analysis.[141]

The distribution of TOS of CDM events was studied by ICC and for all CDM event combined. The average TOS of the 2013–2017 CDM events of the 200 kV+ ac circuits is 0.17, the median TOS is 0.13, and a sample deviation is 0.14. These parameters are greater than for all 200 kV+ ac circuit events (0.12, 0.07, and 0.07, respectively), which is not surprising since CDM events involve multiple outages.

Next, statistical tests are performed to determine statistically significant differences in the average TOS between ICC groups of CDM events. The average (mean) TOS by ICC are shown in **Figure B.6**. A series of the t-tests confirms that the group of CDM events initiated by Contamination has statistically greater expected TOS than other events.[142] This means that when a CDM event initiated Contamination occurs, this event is expected to have a greater impact and a higher risk to the transmission system. The tests on homogeneity of variances highlights statistically greater variances (and the standard deviations) for ICCs Contamination, Human Error, and Power System Condition as compared with other CDM events. The greater variance can signify additional risk since it implies more frequent occurrences of events with high TOS.

Further t-tests indicate that ICC groups Foreign Interference, Other, and Failed AC Circuit Equipment have statistically smaller expected outage severity than other CDM events.[143] Finally, events initiated by the remaining nine ICC groups of CDM events do not have a significant difference in TOS with other CDM events; therefore, are expected to have average TOS when happen.[144]

[141] All statistical tests in Study 2 are performed at the significance level 0.05.
[142] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, determines that ICCs Contamination and Human Error have a statistically significant positive correlation with TOS.
[143] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, determines that ICCs Foreign Interference and Other have a statistically significant negative correlation with TOS.
[144] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, finds no ICC except Contamination, Human Error, Foreign Interference, and Other that has a significant correlation with TOS.

AMERICAN OVERSIGHT

EXT-18-2615-C-000123

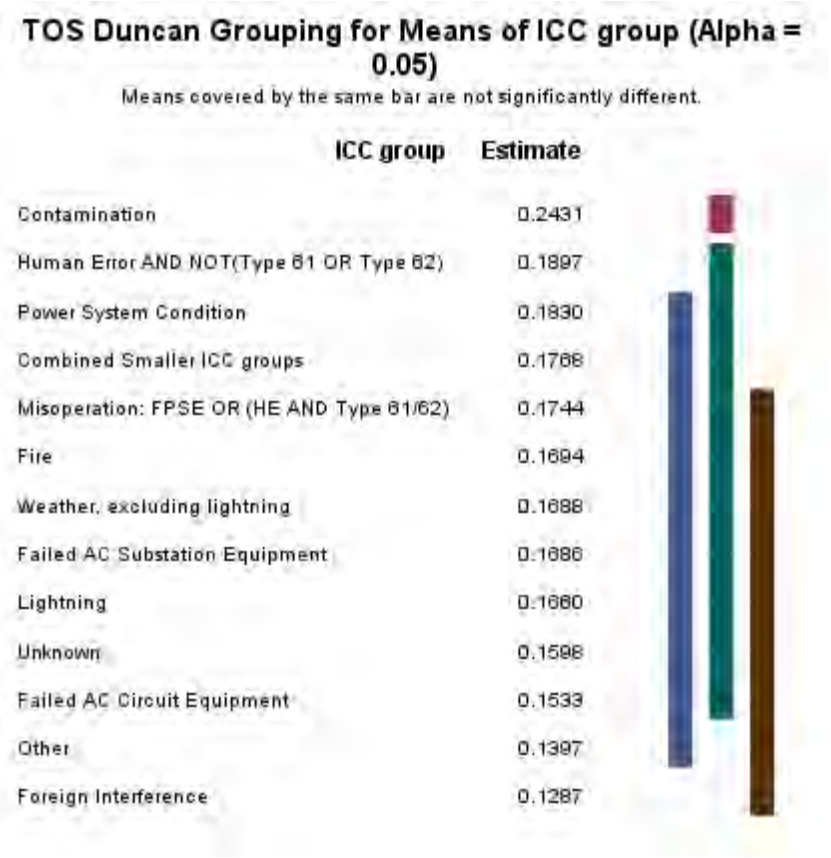



**Figure B.6: TOS of 200 kV+ AC Circuit CDM Outage Events by ICC and ICC grouping by Expected TOS (2013–2017)**

Figure B.6 shows the mean TOS by ICC order from highest to lowest and summarizes results of Duncan's grouping test for the TOS means of CDM events. Each bar connects ICC groups with similar (not statistically significantly different) expected TOS. For example, differences in TOS between events initiated by Misoperation, Fire, Weather (Excluding Lightning), Failed AC Substation Equipment, Lightning, Unknown, Failed AC Circuit Equipment, Other, and Foreign Interference, connected by a brown bar, are not significant, meaning that individual impacts of events from these groups (the expected TOS) are similar. Something noteworthy is that the results of t-test and Duncan's test reflect less TOS variability between ICC groups for CDM events than for all even. This is partially due to the smaller size of CDM groups.

Finally, the transmission risk and relative risk by ICC group for CDM events were calculated and ranked. Table B.8 provides a breakdown of relative risk of CDM events by ICC group.

**Table B.8: Relative Risk of 200 kV+ AC Circuit CDM Events by ICC (2013–2017)**

| Group of TADS events | Probability that an Event from a Group Starts during a Given Hour | Expected Impact (Expected TOS of an Event) | Risk Associated with a Group per Hour | Relative Risk by Group |
|---|---|---|---|---|
| **All TADS 200 kV+** | 0.427 | 0.119 | 0.051 | 100.0% |
| **CDM Events** | 0.059 | 0.168 | 0.010 | 19.6% |
| Misoperation | 0.011 | 0.174 | 0.002 | 3.7% |

AMERICAN OVERSIGHT



EXT-18-2615-C-000124

| Table B.8: Relative Risk of 200 kV+ AC Circuit CDM Events by ICC (2013–2017) | | | | |
|---|---|---|---|---|
| **Group of TADS events** | **Probability that an Event from a Group Starts during a Given Hour** | **Expected Impact (Expected TOS of an Event)** | **Risk Associated with a Group per Hour** | **Relative Risk by Group** |
| Failed AC Substation Equipment | 0.009 | 0.169 | 0.002 | 3.0% |
| Lightning | 0.008 | 0.166 | 0.001 | 2.8% |
| Unknown | 0.006 | 0.160 | 0.001 | 1.8% |
| Weather, Excluding Lightning | 0.005 | 0.169 | 0.001 | 1.7% |
| Human Error (w/o Type 61 OR Type 62) | 0.004 | 0.190 | 0.001 | 1.6% |
| Power System Condition | 0.004 | 0.183 | 0.001 | 1.3% |
| Failed AC Circuit Equipment | 0.004 | 0.153 | 0.001 | 1.1% |
| Other | 0.003 | 0.140 | 0.0004 | 0.7% |
| Foreign Interference | 0.003 | 0.129 | 0.0003 | 0.7% |
| Fire | 0.002 | 0.169 | 0.0003 | 0.6% |
| Contamination | 0.001 | 0.243 | 0.0002 | 0.4% |
| Combined Smaller ICC groups | 0.0005 | 0.177 | 0.0001 | 0.2% |

Overall, TADS CDM events contribute almost 20 percent of the total TOS of the 200 kV+ ac circuits from 2013–2017 with top ICC groups of Misoperation, Failed AC Substation Equipment, and Lightning.

## Study 3: Regional Entity Transmission Analysis of 200 kV+ Momentary and Sustained Events

The following is a study of the TOS of TADS events by Region. This analysis is based on the 2013–2017 TADS data for the 200 kV+ ac circuits and utilizes the general methodology described in the previous sections. Here, a summary of this analysis is introduced and similarities and differences in transmission risk profiles by Region are examined.

**Figure B.7** illustrates differences among the Regions by showing the breakdown of NERC-wide inventory, TADS ac circuit events, and TOS risk by Region. The breakdown of the number of outage events and total TOS is similar to breakdown of the NERC inventory by ac circuit counts and by ac circuit miles.

AMERICAN OVERSIGHT



EXT-18-2615-C-000125

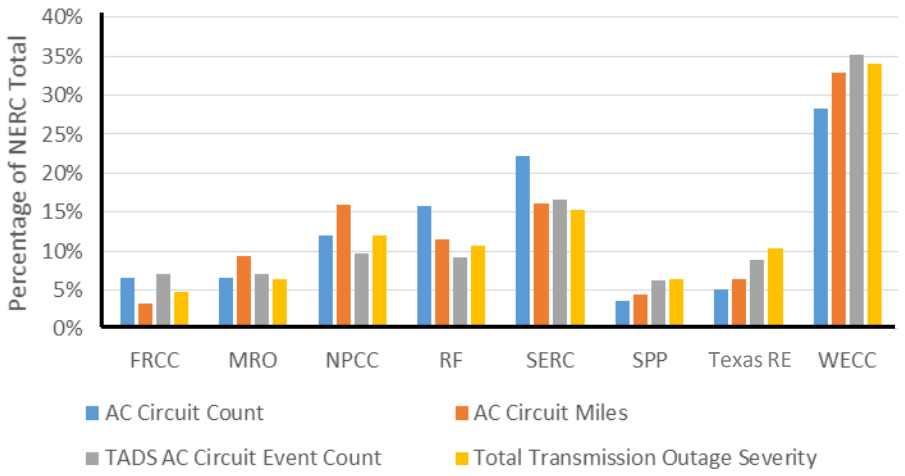



**Figure B.7: NERC 200 kV+ AC Circuit Inventory, TADS Events and Breakdown by Region (2013–2017)**

The TOS by ICC was studied for each Region. A comparative analysis of RE relative risks by ICC is summarized in **Figure B.8**. ICCs are listed from left to right by decreasing relative risk for NERC data.

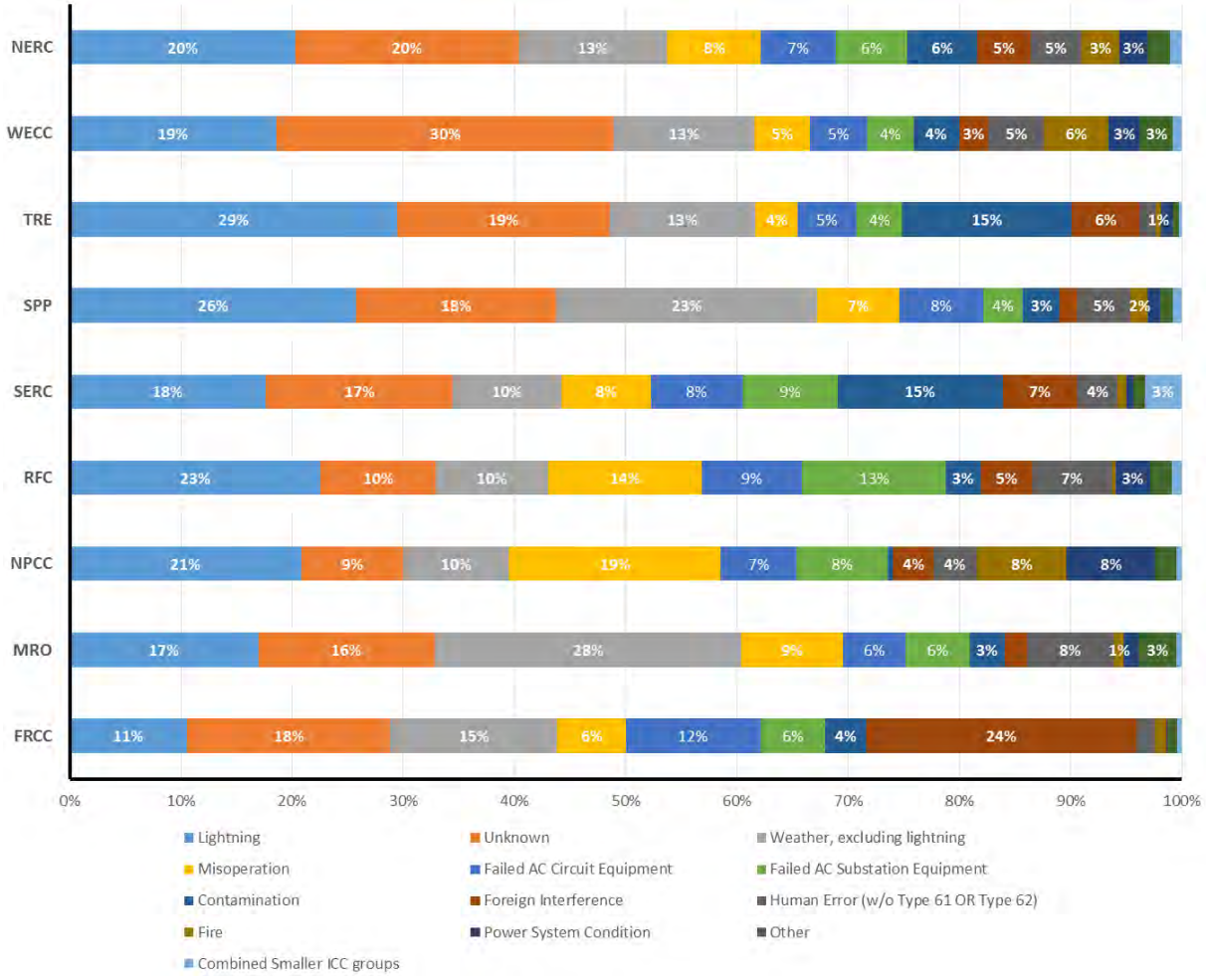



**Figure B.8: Relative Transmission Risk of 200 kV+ AC Circuit Outage Events by ICC and Region (2013–2017)**



AMERICAN OVERSIGHT
EXT-18-2615-C-000126

The ICC contributions vary dramatically among Regions for the top NERC ICCs. For example, Misoperation has the highest relative risk in NPCC (19 percent) and the lowest in Texas RE (four percent) with other Regions' numbers being closer to the NERC average of nine percent. For Texas RE and WECC, AC Substation Equipment failures resulted in four percent of the total TOS while they contributed 13 percent in RF. A relative risk ICC Unknown varied from 30 percent in WECC to nine percent in NPCC while NERC-wide it ranked second with 20 percent of the total TOS.

FRCC has a very distinctive profile with a unique risk breakdown. FRCC's top-risk ICC is Foreign Interference, which ranks low for NERC and other Regions. On the other hand, NERC's largest contributor, ICC Lightning, contributes only 11 percent to FRCC's TOS.

Finally, **Figure B.9** shows changes in the total TOS by year for Regions and NERC. FRCC had consecutive year-to-year TOS increases from 2013–2017, MRO's TOS stayed essentially flat, NPCC in 2017 had the second highest TOS compared with 2013, RF consistently improved from 2013–2017, SERC had a stable performance in 2013–2016 and the best year in 2017, SPP and Texas RE had an increase from 2014 to 2015 and stayed stable from 2015–2017, WECC and NERC had the highest TOS in 2013, smallest in 2014, and non-significant changes from 2015–2017. NERC year-to-year TOS changes reflect changes in the number of outage events (the bottom row of **Table B.4**) as well as changes in the expected TOS of an individual event shown in **Figure B.4**.

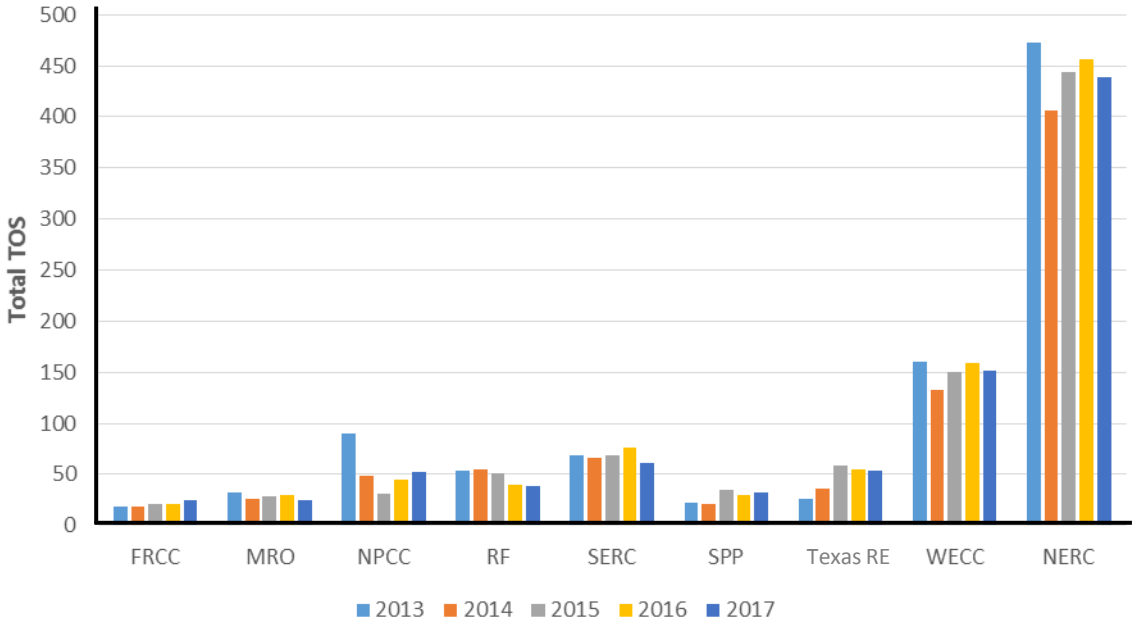



**Figure B.9: Total TOS by Year by Region and NERC for 200 kV+ AC Circuit Outage Events (2013–2017)**

# Study 4: TADS Sustained Events of 100 kV+ AC Circuits and Transformers

## Sustained Events with Common ICC by Year and Estimates of Event Probability

The addition of the BES elements below 200 kV, beginning in the year 2015, significantly increased TADS inventory, especially for ac circuits. It should be noted that only sustained automatic outages were collected by TADS for voltages less than 200 kV. The definition of Sustained Outage has been extended to a TADS event with duration of one minute or greater. This study is based on the 2015–2017 TADS data for sustained outage events of the 100 kV and above ac circuits and transformers.

AMERICAN OVERSIGHT



EXT-18-2615-C-000127

Table B.9 lists annual counts and hourly sustained event probability by ICC and for all ICC combined. From 2015–2017, the total of 19,546 sustained events was reported. Almost 93 percent of events involved only ac circuit outages, about five percent involved only transformer outages, and the remaining two percent involved both ac circuit and transformer outages. In Study 4 these events are analyzed together.

Almost all TADS ICC groups have sufficient number of events to be used in a statistical year-to-year analysis.[145] Only two ICCs (Vandalism, Terrorism, or Malicious Acts; and Environmental) do not have sufficient size for reliable statistical inferences. Therefore, these ICC groups are added to ICC Contamination to create a new group, named "Combined Smaller ICC Groups Study 4," that can be statistically compared to every other group and also studied with respect to annual changes of TOS.

For sustained events initiated by a common cause, the probability of observing the initiation of an event during a given hour, listed in the last column of **Table B.9**, is estimated using the corresponding historical event occurrences reported in TADS.[146] The reciprocal of the probability of 0.743 events per hour estimates that in the defined BES system a sustained ac circuit or transformer event started, on average, every 1 hour and 21 minutes.

**Table B.9: Sustained Events 100 kV+ AC Circuits and Transformers and Hourly Event Probability by ICC (2015–2017)**

| Initiating Cause Code | 2015 | 2016 | 2017 | 2015–2017 | Event Initiation Probability/Hour |
|---|---|---|---|---|---|
| Weather, Excluding Lightning | 1,117 | 1,095 | 1,458 | 3,670 | 0.140 |
| Failed AC Circuit Equipment | 794 | 847 | 790 | 2,431 | 0.092 |
| Unknown | 906 | 750 | 722 | 2,378 | 0.090 |
| Lightning | 755 | 654 | 714 | 2,123 | 0.081 |
| Failed AC Substation Equipment | 667 | 639 | 611 | 1,917 | 0.073 |
| Foreign Interference | 494 | 571 | 515 | 1,580 | 0.060 |
| Misoperation | 481 | 491 | 469 | 1,441 | 0.055 |
| Vegetation | 333 | 320 | 378 | 1,031 | 0.039 |
| Human Error (w/o Type 61 OR Type 62) | 348 | 358 | 309 | 1,015 | 0.039 |
| Other | 211 | 165 | 165 | 541 | 0.021 |
| Fire | 118 | 127 | 218 | 463 | 0.018 |
| Power System Condition | 110 | 185 | 137 | 432 | 0.016 |
| **Combined Smaller ICC groups** | 122 | 202 | 200 | 524 | 0.020 |
| *Contamination* | 89 | 178 | 162 | 429 | 0.016 |
| *Environmental* | 26 | 11 | 23 | 60 | 0.002 |
| *Vandalism, Terrorism, or Malicious Acts* | 7 | 13 | 15 | 35 | 0.001 |
| **All Events** | **6,456** | **6,404** | **6,686** | **19,546** | **0.743** |

[145] A size of the dataset should be sufficient to apply the Central Limit Theorem for the annual sample means (40 or more observations).

[146] Probability is estimated using event occurrence frequency of each ICC type without taking into account the event duration. Namely, the event occurrence probability is the total number of occurrences for a given type of event observed during the historical data period divided by the total number of hours in the same period. Therefore, the sum of the estimated probabilities over all ICCs is equal to the estimated probability of any sustained event during a given hour.

AMERICAN OVERSIGHT



EXT-18-2615-C-000128

ICC Weather, Excluding Lightning, is the largest group of sustained events. It had a significant increase of 33 percent from 2016 to 2017. Other ICCs with significant increases were Fire (72 percent) and Vegetation (18 percent). ICCs Power System Condition, Human Error, and Foreign Interference had the biggest decreases from 2016 to 2017 (26 percent, 14 percent, and 10 percent, respectively). Overall, the number of sustained events marginally decreased from 2015 to 2016 (a decrease of less than one percent) and increased by four percent from 2016 to 2017.

## TOS by ICC

Using the TOS measure and sustained event ICCs, NERC staff statistically analyzed the most recent three years of TADS data (2015–2017).[147] The TOS of a sustained event is calculated by applying **Table B.1** and **Equation B.2**. The distribution of TOS was studied separately for sustained events with a given ICC and the complete dataset for the three years combined.

The average TOS of the 2015–2017 sustained outage events is 0.034, the median TOS is 0.012, and a sample deviation is 0.039. The largest TOS of 0.961 was observed in a NPCC event coded as having initiated by Misoperation (an original TADS ICC of Failed Protection System Equipment) on August 10, 2017, with outages on 18 ac circuits and six transformers. The event occurred in Northeast Ontario and resulted with the area's separation from the BES. Additional investigation is currently being performed by NERC Event Analysis.

Next, statistical tests are performed to determine statistically significant differences in the average TOS between ICC groups. The TOS averages (means) by ICC are shown in **Figure B.10** listed from highest (ICC Power System Condition) to smallest (Vegetation). A series of the t-tests determined that each of groups of events initiated by Power System Condition, Fire, Combined Smaller ICC groups, Misoperation, Failed AC Substation Equipment, Human Error, and Unknown has statistically greater expected outage severity than other events.[148] It means that when an event initiated by one of these causes occurs, it is expected to have a greater impact and a higher risk to the transmission system. The tests on homogeneity of variances find statistically greater variances (and the standard deviations) for the same ICC groups except Human Error and Unknown as compared with other events. The greater variance can signify additional risk since it implies more frequent occurrences of events with high TOS.

Further t-tests indicate that each of the ICC groups Vegetation, Foreign Interference, Weather (Excluding Lightning), and Failed AC Circuit Equipment has statistically smaller expected outage severity than other events.[149] Finally, events initiated by Other and Lightning do not have a significant difference in outage severity with other events, therefore, are expected to have an average dataset TOS when happen,[150]

[147] All statistical tests in Study 1 are performed at the significance level 0.05

[148] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, confirms that these ICCs have a statistically significant positive correlation with TOS.

[149] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, confirms that these ICCs have a statistically significant negative correlation with TOS.

[150] Additionally, a test on significance of correlation, which is equivalent to a polled t-test, confirms that ICCs Lightning and Other have no significant correlation with TOS.

AMERICAN OVERSIGHT



EXT-18-2615-C-000129

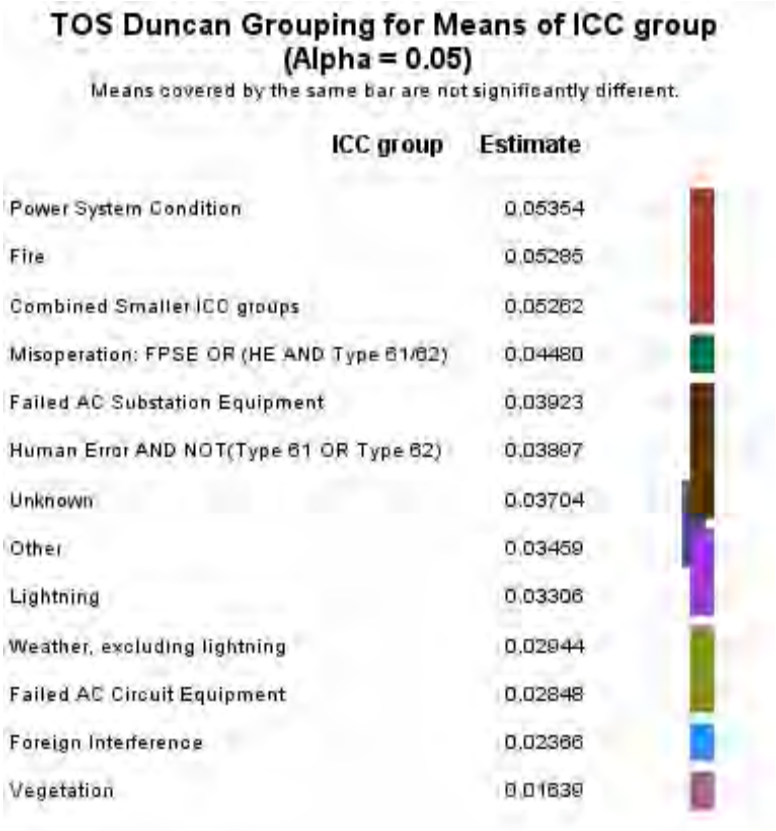



**Figure B.10: TOS of 100 kV+ AC Circuit and Transformer Sustained Events by ICC and ICC grouping by Expected TOS (2015–2017)**

Figure B.10 also summarizes results of Duncan's grouping test for the TOS means. Each bar connects ICC groups with similar (not statistically significantly different) expected TOS. For example, differences in TOS between events initiated by Power System Condition, Fire, and Combined Smaller ICC Groups, connected by a red bar, are not significant, meaning that individual impacts of events from these groups (the expected TOS) are similar.

## Average TOS by ICC: Annual Changes

Year-over-year changes in calculated TOS for 100 kV+ sustained events by ICC are reviewed next. Figure B.11 shows changes in the average TOS for each ICC for years 2015–2017. The groups of ICC events are listed from left to right by descending average TOS for the five years combined (the average TOS are listed in Figure B.10).

AMERICAN OVERSIGHT



EXT-18-2615-C-000130

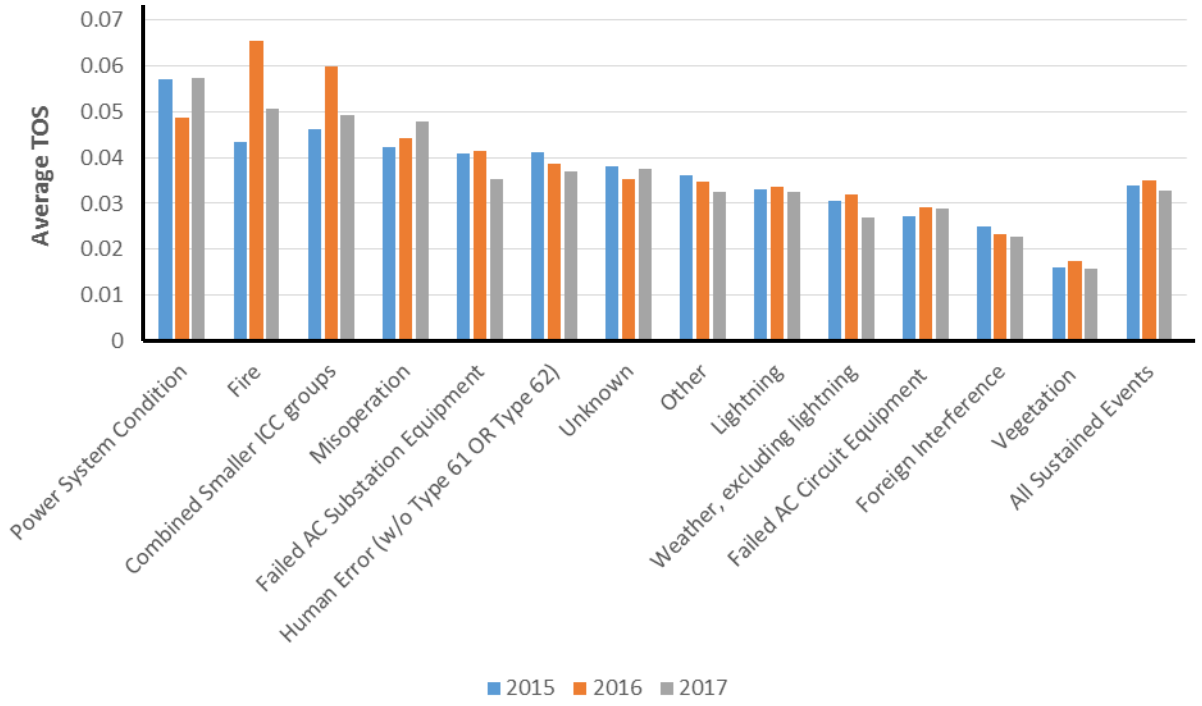



**Figure B.11: Average TOS of Sustained Events of 100 kV+ AC Circuits and Transformers by ICC and Year (2015–2017)**

A series of Fisher's Least Significant Difference tests allowed to identify statistically significant year-over-year changes in TOS by ICC and for all events combined. In 2017 the average TOS statistically significantly decreased for ICCs:

- **Fire:** compared with 2016
- **Combined Smaller ICC Groups:** compared with 2016
- **Failed AC Substation Equipment:** compared with 2015 and 2016
- **Weather, Excluding Lightning:** compared with 2015 and 2016

In 2017 there were no statistically significant increases in the average TOS by ICC. For all sustained events combined, the average TOS in 2017 was statistically lower than in 2016 and similar 2015.

## TOS Risk and Relative Risk of 100 kV+ AC Circuit and Transformer Sustained Events by ICC

The risk of each ICC group can be defined as the total TOS associated with this group. Its relative risk is equal to the percentage of the group TOS in the 2015–2017 database. Equivalently, the risk of a given ICC per hour can be defined as the product of the probability that an event with this ICC initiates during an hour and the expected TOS (impact) of an event from this group.[151]

[151] The probability that an event from a given ICC group initiates during a given hour is listed in Table B.9, and the expected TOS by ICC are shown in Figure B.9. For any ICC group, the relative risk per hour is the same as the relative risk for a year (or any other time period) if estimated from the same dataset.

AMERICAN OVERSIGHT



EXT-18-2615-C-000131

| Table B.10: Relative Risk of Sustained Events of 100 kV+ AC Circuits and Transformers by ICC (2015–2017) | | | | |
|---|---|---|---|---|
| **Group of TADS events** | **Probability that an Event from a Group Starts during a Given Hour** | **Expected Impact (Expected TOS of an Event)** | **Risk Associated with a Group per Hour** | **Relative Risk by Group** |
| **TADS sustained events 100 kV+** | 0.743 | 0.034 | 0.025 | 100.0% |
| Weather, Excluding Lightning | 0.140 | 0.029 | 0.004 | 16.3% |
| Unknown | 0.090 | 0.037 | 0.003 | 13.3% |
| Failed AC Substation Equipment | 0.073 | 0.039 | 0.003 | 11.3% |
| Lightning | 0.081 | 0.033 | 0.003 | 10.6% |
| Failed AC Circuit Equipment | 0.092 | 0.028 | 0.0026 | 10.4% |
| Misoperation | 0.055 | 0.045 | 0.0025 | 9.7% |
| Human Error (w/o Type 61 OR Type 62) | 0.039 | 0.039 | 0.0015 | 6.0% |
| Foreign Interference | 0.060 | 0.024 | 0.0014 | 5.6% |
| Combined Smaller ICC groups | 0.020 | 0.053 | 0.0010 | 4.2% |
| Fire | 0.018 | 0.053 | 0.0009 | 3.7% |
| Power System Condition | 0.016 | 0.054 | 0.0009 | 3.5% |
| Other | 0.021 | 0.035 | 0.0007 | 2.8% |
| Vegetation | 0.039 | 0.016 | 0.0006 | 2.5% |

Relative risk of the 2015–2017 TADS 100 kV+ ac circuit and transformer sustained events by ICC is listed in **Table B.10** in decreasing order. Weather, Excluding Lightning, Unknown, and Failed AC Substation Equipment are three ICCs with the largest relative risk. Events initiated by Weather, Excluding Lightning, have a small expected individual TOS but they happened more frequently than events with other ICCs. Despite having the three largest TOS averages, Power System Condition, Fire, and Combined Smaller ICC Groups rank low with respect to relative risk because of a small number of events with these ICCs and their low frequency.

**Figure B.12** shows year-over-year changes in the relative risk of TADS sustained events by ICC. The groups of ICC events are listed from left to right by descending relative risk for years 2015–2017 combined. The top contributor to transmission risk, Weather, Excluding Lightning, had a significant increase in the total TOS from 2016 to 2017 due to a big increase in the number (and the frequency) of events as reflected in **Table B.9**. Another ICC with significant risk increase from 2016 to 2017 was Fire. Relative risk of ICCs Failed AC Substation Equipment, Combined Smaller Groups, Human Error, Power System Condition, and Foreign Interference significantly decreased from 2016 to 2017. Other ICCs did not have significant changes in 2017.

AMERICAN OVERSIGHT



EXT-18-2615-C-000132

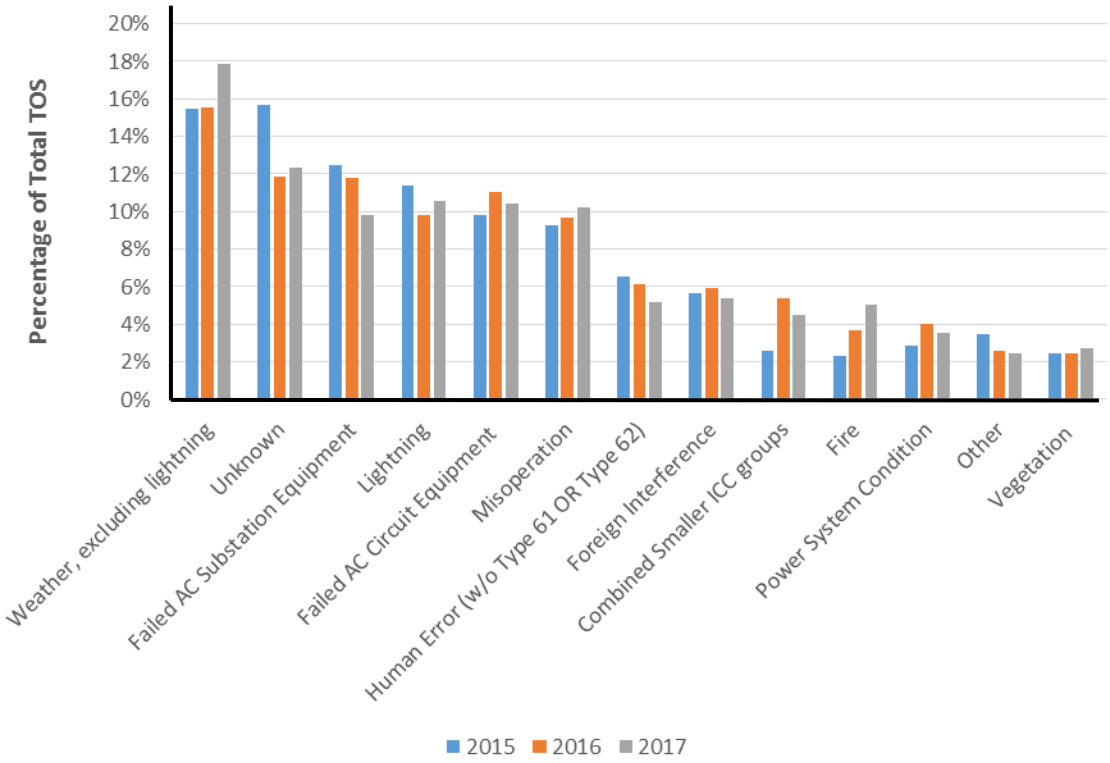



**Figure B.12: Relative TOS Risk 100 kV+ AC Circuit Outage Events by ICC and Year (2015–2017)**

## Study 5: Sustained Cause Code and ICC-SCC Study for Sustained Outages of 100 kV+ AC Circuits

Besides an ICC, a SCC is assigned to a sustained outage. The SCC describes the cause that contributed to the longest duration of the outage. The list of TADS SCCs is the same as the list of ICCs as shown in **Table B.4**. A method of assigning a single SCC to a TADS event with multiple outages having different SCCs has not yet been developed; therefore, it is not yet possible to analyze SCCs by applying the same methodology as described in Studies 1–4 for ICCs.

In this study, the 2015–2017 sustained outages of the 100 kV+ ac circuits with a TOS calculated by **Equation B.1** are investigated by SCC. TADS outages, unlike TADS events, can be dependent; thus, they do not represent a statistical sample with independent observations. Therefore, the risk analysis for outages is limited to the TOS calculation, numerical comparison of the TOS of SCC groups, and their ranking. However, there is another important variable reported for sustained outages—the outage duration. **Table B.11** provides some statistics on the outage duration by SCC and then suggest a way to incorporate duration into analysis of the relative risk by SCC.

**Table B.11** lists the number of outages, the average, the median, and the maximum outage duration by SCC and overall for the 2015–2017 sustained outages of the 100 kV+ ac circuits. SCC groups are listed in decreasing order by number of outages.

AMERICAN OVERSIGHT



EXT-18-2615-C-000133

| Table B.11: TADS Sustained Outages 100 kV+ AC Circuits (2015–2017) | | | | |
|---|---|---|---|---|
| **Sustained Cause Code** | **Number of Outages** | **Average Outage Duration (Hours)** | **Median Outage Duration (Hours)** | **Maximum Duration (Days)** |
| Failed AC Circuit Equipment | 3,664 | 59.9 | 13.0 | 366.0 |
| Failed AC Substation Equipment | 2,392 | 44.5 | 3.3 | 365.0 |
| Weather, Excluding Lightning | 2,341 | 20.8 | 1.7 | 245.8 |
| Other | 2,055 | 7.6 | 0.2 | 95.1 |
| Unknown | 1,986 | 8.6 | 0.2 | 83.4 |
| Misoperation | 1,714 | 8.5 | 1.0 | 34.5 |
| Foreign Interference | 1,457 | 9.9 | 2.3 | 25.6 |
| Lightning | 1,223 | 4.1 | 0.1 | 37.6 |
| Vegetation | 1,204 | 26.8 | 10.9 | 57.9 |
| Human Error (w/o Event Type 61 or 62) | 1,030 | 5.0 | 0.3 | 40.1 |
| Power System Condition | 814 | 21.9 | 0.8 | 161.0 |
| Fire | 387 | 25.3 | 1.8 | 52.9 |
| Contamination | 341 | 8.0 | 0.4 | 5.6 |
| Environmental | 73 | 38.2 | 11.9 | 24.2 |
| Vandalism, Terrorism, or Malicious Acts | 28 | 54.4 | 6.3 | 53.9 |
| **All Sustained Outages** | **20,709** | **24.8** | **2.0** | **366.0** |

The SCC order differs from that seen for ICC groups in Studies 1, 2, and 4 (**Table B.4**, **Table B.7**, and **Table B.9**). Outages with SCC Failed AC Circuit Equipment not only comprise the largest group, but they have also, on average, the longest durations. Another observation is that the SCC Other is the fourth biggest group that contains almost 10 percent of the 2015–2017 sustained outages compared with the low ranked ICC Other in **Table B.4**. Outages with SCC Other, on average, are shorter than overall sustained outages. The same is true for the fifth largest SCC group, Unknown.

The TOS of each outage is calculated by **Equation B.1**, then the total TOS of each SCC group is calculated, and the relative risk of a SCC is determined based on contribution of the group to the total TOS of all 2015–2017 sustained outages. The analysis is repeated for the TOS weighted with an outage duration with the purpose to take into account the outage duration and incorporate it as a factor that impacts transmission outage risk. The results of these two analyses of the relative SCC risk are compared to illustrate how outage duration affects the SCC ranking.

Since there are outages with very large durations (up to 366 days), two types of sensitivity analysis are performed for the evaluation of transmission severity weighted with outage duration: First, the SCC analysis is repeated for all outages not longer than one month (with the 121 outages or about 0.6 percent of the total dataset removed); second, the analysis is rerun with the top percent of longest outages removed (208 outages longer than 14.7 days removed).

**Figure B.13** summarizes results of the four analyses of the relative transmission outage risk by SCC. SCC Environmental and SCC Vandalism, Terrorism, and Malicious Acts, the two groups with less than one percent of the relative transmission outage risk each, are not shown.

AMERICAN OVERSIGHT



EXT-18-2615-C-000134

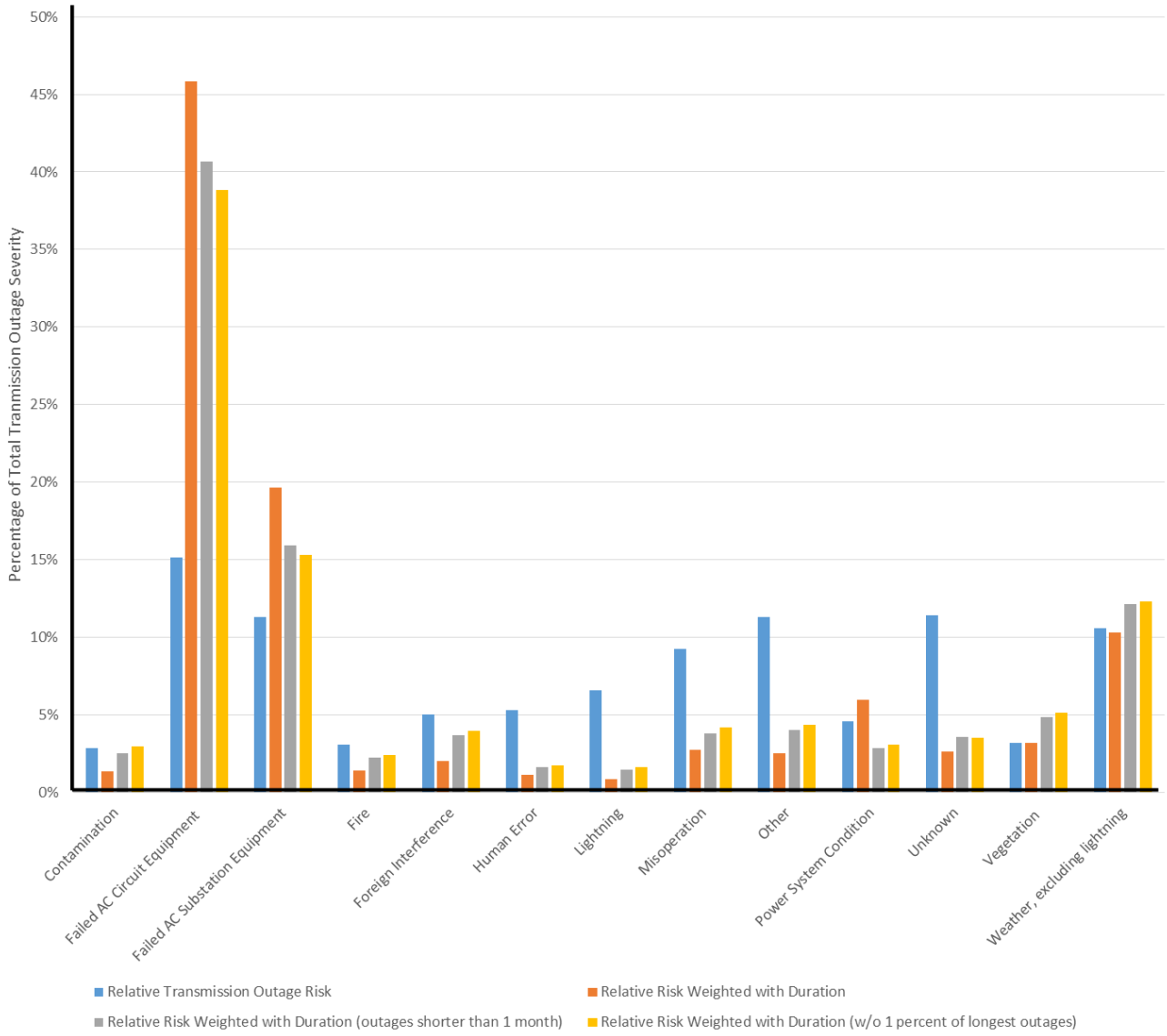



**Figure B.13: Relative TOS Risk by SCC for Sustained Outages of the 100 kV+ AC Circuits (2015–2017)**

Figure B.13 shows the SCC relative transmission outage risk and the SCC relative transmission outage risk weighted with duration. The largest differences are observed for the SCCs with "non-typical" average outage durations (i.e., the average outage duration significantly different from the average duration of 24.8 hours).

Events with SCC Failed AC Circuit Equipment have the highest average outage duration. The relative transmission outage risk of this SCC increases from 15 percent to 45 percent when measured by unweighted and weighted transmission outage risk, respectively (in both causes this SCC ranks the highest). Similarly, the relative transmission outage risk of SCC Failed AC Substation Equipment increases from 11 percent to 20 percent. For SCCs with shorter average durations, such as Unknown, Other, Lightning, Misoperation, Human Error, and Foreign Interference, the relative transmission outage risks are noticeably lower when weighted with outage duration (e.g., for SCC's Unknown and Other from 11 percent to three percent of the total transmission severity and for SCC Misoperation from nine percent to three percent).

Comparison of the three right-hand side bars for each SCC allows for the drawing of some observations on sensitivity analyses and evaluate effect of the longest outages on the SCC relative risk. Overall, an SCC relative risk does not

AMERICAN OVERSIGHT

EXT-18-2615-C-000135

change much among these three types; this fact confirms that the SCC relative transmission outage risk, weighted with duration calculations, are robust with respect to duration outliers.

Table B.12 shows the SCC rankings by relative transmission outage risk (unweighted and weighted with outage duration).

**Table B.12: SCC Ranking for TADS Sustained Outages 100 kV+ AC Circuits (2015–2017)**

| Sustained Cause Code | By Relative Transmission Outage Risk | By Relative Transmission Outage Risk Weighted with Outage Duration |
|---|---|---|
| Contamination | 13 | 11 |
| Environmental | 14 | 14 |
| Failed AC Circuit Equipment | 1 | 1 |
| Failed AC Substation Equipment | 3 | 2 |
| Fire | 12 | 10 |
| Foreign Interference | 9 | 9 |
| Human Error | 8 | 12 |
| Lightning | 7 | 13 |
| Misoperation | 6 | 6 |
| Other | 4 | 8 |
| Power System Condition | 10 | 4 |
| Unknown | 2 | 7 |
| Vandalism, Terrorism, or Malicious Acts | 15 | 15 |
| Vegetation | 11 | 5 |
| Weather, Excluding Lightning | 5 | 3 |

For several SCCs, there are significant differences between their respective ranks due to differences in outage duration impact.

A summary of analysis of the sustained outages by the ICC-SCC pair is presented in Table B.13. The table lists the ICC-SCC groups with the total percent of all outages in each group, the percent of the total TOS for 2015–2017 comprised by the outages in each group, and the percent of the TOS weighted with outage duration calculated by the method described above in Study 5.

**Table B.13: TADS Sustained Outages 100 kV+ AC Circuits by ICC-SCC (2015–2017)**

| Initiating Cause Code | Sustained Cause Code | Percent of Total Outages | Percent of Total TOS | Percent of Total TOS Weighted with Duration |
|---|---|---|---|---|
| Failed AC Circuit Equipment | Failed AC Circuit Equipment | 11.3% | 9.8% | 25.8% |
| Failed AC Substation Equipment | Failed AC Substation Equipment | 9.3% | 9.2% | 17.2% |
| Weather, Excluding Lightning | Failed AC Circuit Equipment | 3.1% | 2.7% | 14.2% |
| Weather, Excluding Lightning | Weather, Excluding Lightning | 10.9% | 10.2% | 10.2% |
| Power System Condition | Power System Condition | 2.4% | 3.1% | 4.3% |
| Misoperation | Misoperation | 7.0% | 8.0% | 2.4% |
| Unknown | Unknown | 8.7% | 10.4% | 1.8% |

AMERICAN OVERSIGHT



EXT-18-2615-C-000136

| Table B.13: TADS Sustained Outages 100 kV+ AC Circuits by ICC-SCC (2015–2017) | | | | |
|---|---|---|---|---|
| **Initiating Cause Code** | **Sustained Cause Code** | **Percent of Total Outages** | **Percent of Total TOS** | **Percent of Total TOS Weighted with Duration** |
| Foreign Interference | Foreign Interference | 6.4% | 4.6% | 1.6% |
| Vegetation | Vegetation | 4.5% | 2.4% | 1.6% |
| Fire | Fire | 1.8% | 3.0% | 1.4% |
| Foreign Interference | Failed AC Circuit Equipment | 0.6% | 0.4% | 1.4% |
| Contamination | Contamination | 1.5% | 2.6% | 1.3% |
| Other | Other | 2.4% | 2.4% | 1.2% |
| Human Error | Human Error | 4.6% | 4.8% | 1.0% |
| Lightning | Failed AC Circuit Equipment | 0.9% | 0.8% | 0.9% |
| Lightning | Lightning | 5.8% | 6.5% | 0.8% |
| Lightning | Failed AC Substation Equipment | 0.6% | 0.5% | 0.6% |
| Weather, Excluding Lightning | Other | 1.4% | 2.0% | 0.4% |
| Lightning | Other | 1.9% | 1.9% | 0.2% |
| Failed AC Substation Equipment | Other | 1.9% | 0.3% | 0.1% |
| Unknown | Other | 1.4% | 1.7% | 0.1% |
| Failed AC Circuit Equipment | Other | 1.4% | 0.3% | 0.1% |

Theoretically, for the 15 ICCs and 15 SCCs, 225=15*15 ICC-SCC pairs are possible. In the 2015–2017 dataset of sustained ac circuit outages, a total of 164 distinct pairs appear. In **Table B.13,** only the top 22 ICC-SCC pairs are listed with at least 0.5 percent of the total number of outages (a minimum of 121 outages out of 20,709) for the three years in each group. These 22 largest groups are listed by decreasing number of outages. Together, they represent 90 percent of outages, a total of 88 percent of the total TOS, and 89 percent of the total TOS weighted with outage duration. The top nine groups are comprised of outages with coinciding ICC and SCC. The ICC-SCC Failed AC Circuit Equipment is the largest group, followed by Weather (Excluding Lightning), Failed AC Substation Equipment, and Unknown.

Ranking with respect to the TOS is different: the ICC-SCC Unknown ranks highest with the 10.4 percent of the total TOS for 2015–2017 followed by ICC-SCC Weather (Excluding Lightning), and ICC-SCC Failed AC Circuit Equipment. The ICC-SCC Failed AC Circuit Equipment is the top ranked by the TOS weighted with outage duration with the total 25 percent of the relative outage risk. In the weighted ranking, the ICC-SCC Unknown's relative outage risk decreases to 1.8 percent due to shorter outage duration—an effect of the weighting as described in a discussion on **Figure B.13**.

In regards to Study 5, both unweighted and weighted rankings in **Table B.12** and **Table B.13** are derived and presented without making a decision about superiority of either method of the relative transmission outage risk evaluation. Each method has its advantages and disadvantages: the transmission outage risk that is based on TOS calculations without duration is simpler and allows for the analysis of all outages and events of both momentary and sustained. The transmission outage risk, based on the TOS weighted with outage duration discards momentary outages from the analysis, and while it does take into account differences in sustained outage duration, more analysis and the industry expert discussions are needed to decide whether the weighing is fair. For example, as a result of this weighting, a 300–399 kV voltage class one-hour ac circuit outage contributes to the total weighted transmission severity equally with an outage of the 100–199 kV ac circuit with duration of six hours and 30 minutes; with an outage of the 200–299 kV ac circuit with duration of one hour and 51 minutes; with an outage of the 400–599 kV ac circuit with duration of 39 minutes; and with an outage of the 600–799 kV ac circuit with duration of 26 minutes.

A summary of results of Studies 1–5 is provided in Overview of TADS Analysis in **Chapter 1**.

AMERICAN OVERSIGHT



EXT-18-2615-C-000137

# Appendix C: Analysis of Generator Data

## Introduction

GADS, beginning in 2013, collects design, performance, and event data for conventional generating units that are 20 MW and larger. In addition, smaller units and other units outside of NERC's jurisdiction may report into GADS on a voluntary basis. The analysis for this report includes only active units with a mandatory reporting obligation that have reported performance data as of the reporting deadline for the period being analyzed. Data used in the analysis includes information reported into GADS through the end of 2017.

GADS does not include wind, solar, other renewable technology generating assets, distributed energy resources, or other small energy sources. Wind performance data reporting requirements have been developed, and a phased-in reporting process began in 2017 and continues through 2020. Reporting data requirements for solar have been initiated with a target goal of data submittal to begin by 2021.

GADS collects and stores unit operating information. By pooling individual unit information, overall generating unit availability performance and metrics are calculated. The information supports equipment reliability, availability analyses, and risk-informed decision making to industry. Reports and information resulting from the data collected through GADS are used by industry for benchmarking and analyzing electric power plants. **Table C.1** shows the number of units and average age characteristics of the population reporting into GADS and select unit types for each year.

**Table C.1: Key Characteristics of GADS**

| Metric/year | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Numbering of Reporting Units | 6,129 | 6,100 | 6,106 | 5,982 | 5,810 |
| Average Age of the Fleet (Years) | 34 | 34 | 35 | 35 | 34 |
| Average Age of Coal Units (Years) | 43 | 44 | 44 | 43 | 44 |
| Average Age of Natural Gas Units (Years) | 21 | 22 | 22 | 23 | 23 |
| Average Age of Nuclear Units (Years) | 35 | 36 | 36 | 37 | 38 |

The age of the generating fleet is considered to be a particularly relevant statistic derived from GADS, because an aging fleet could potentially see increasing outages. However, with proper maintenance and equipment replacement, older units may perform comparably to newer units. In addition, the WEFOR, reported later in this section, shows stable rates of forced outages. **Table C.1** also shows the age of conventional units remaining stable. Future reports will continue to monitor the age to see how the fleet is changing.

**Figure C.1** uses GADS data to plot fleet capacity by age and fuel type. **Figure C.1** shows two characteristics of the fleet reported to GADS: an age bubble exists around 38–47 years, by a population consisting of coal and some natural gas units, and a significant age bubble around 13–21 years is comprised almost exclusively of natural gas units. The data shows a clear shift toward natural-gas-fired unit additions, and the overall age of the fleet across North America is almost 20 years younger than the age of the coal-fired base-load plants that have been the backbone of power supply for many years. This trend is projected to continue given current forecasts around price and availability of natural gas as a power generation fuel as well as regulatory impetus.

AMERICAN OVERSIGHT

EXT-18-2615-C-000138

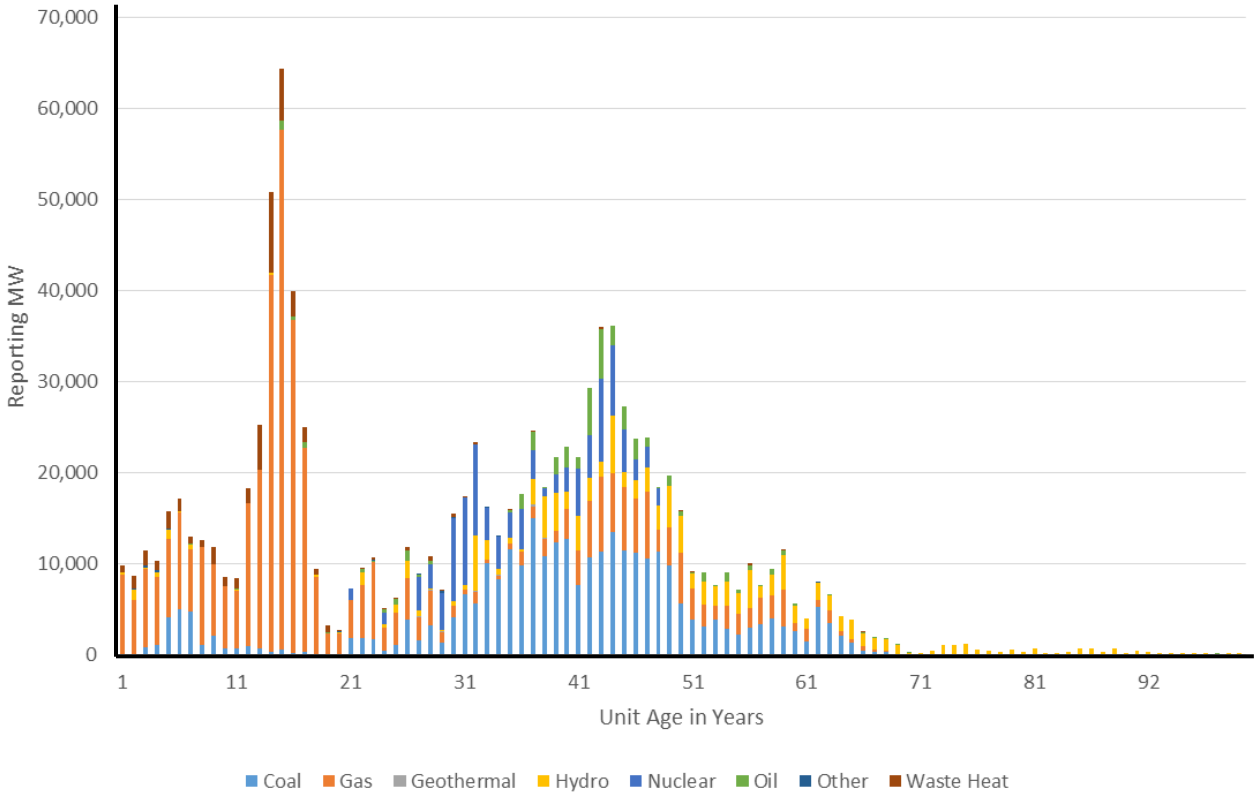



**Figure C.1: Fleet Capacity by Age and Fuel Type**

## Generator Fleet Reliability

GADS contains information that can be used to compute reliability measures, such as WEFOR. WEFOR is a metric measuring the probability that a unit will not be available to deliver its full capacity at any given time, taking into consideration forced outages and derates.

**Figure C.2** presents the monthly megawatt-weighted EFOR[152] across the NERC footprint for the five-year period of 2013–2017.[153] The horizontal steps show the annual EFOR compared to the monthly EFOR; the solid horizontal bar in **Figure C.2** shows the mean outage rate over each year. The mean outage rate over the analysis period is seven percent. The EFOR has been fairly consistent with a near-exact standard distribution.

[152] Equivalent Forced outage rate (EFOR)

[153] The reporting year covers January 1 through December 31.



AMERICAN OVERSIGHT
EXT-18-2615-C-000139

EXT-18-2615-C-000140

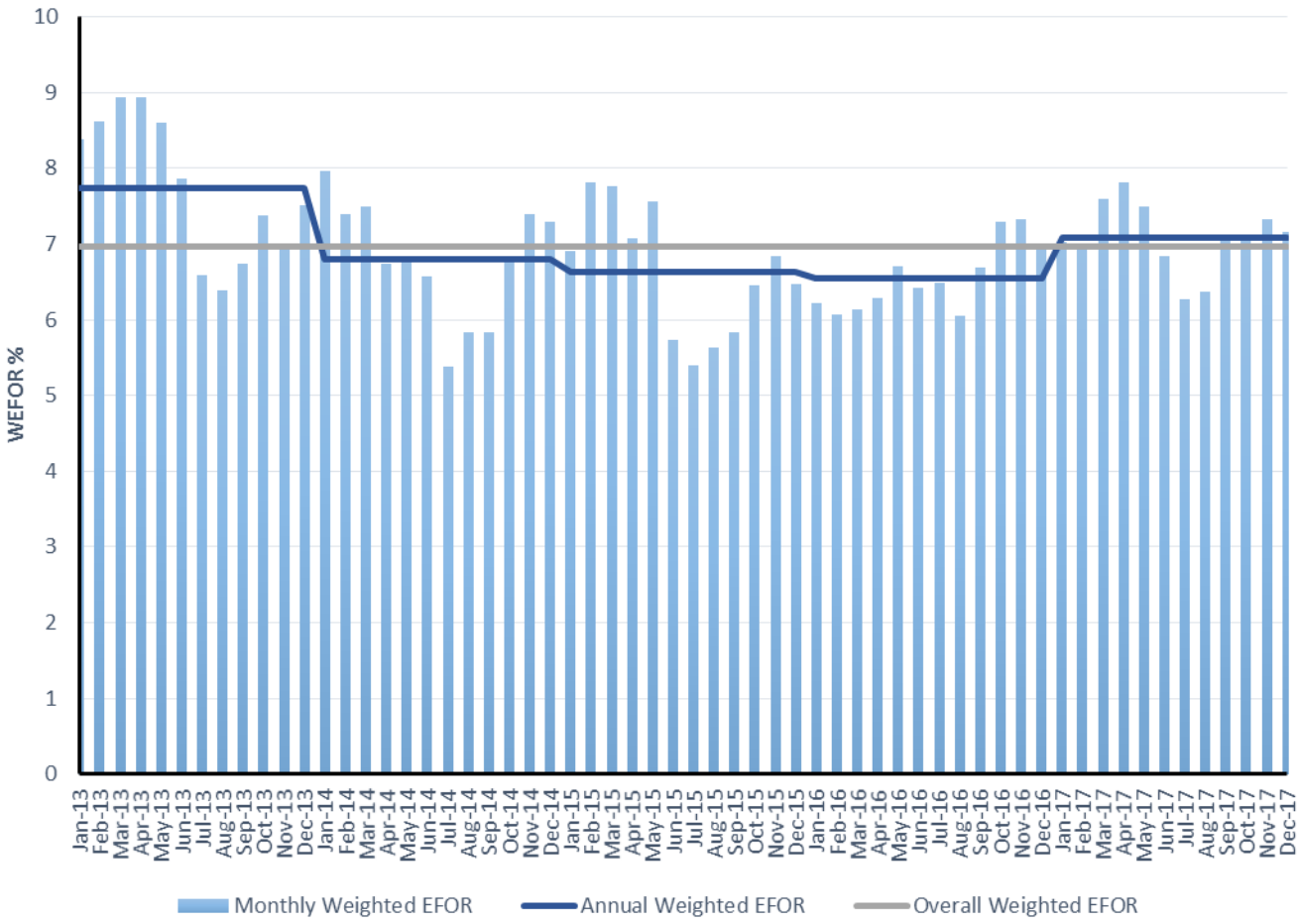



**Figure C.2: Monthly MW Capacity-Weighted EFOR 2013–2017**

## Forced Outage Causes

To better understand the causes of forced outages of generators, the annual and top 10 forced outage causes for the summer and winter seasons were analyzed for the period of 2013–2017. This analysis is focused on forced outage causes measured in terms of net TWh of potential production lost, so both the amount of capacity affected and the duration of the outages are captured.

The levels of forced outages reported into the GADS database are presented in **Figure C.3** and **Table C.2**, providing detail on the net TWh of potential production lost due to forced outages for the period 2013–2017 by calendar year.

AMERICAN OVERSIGHT

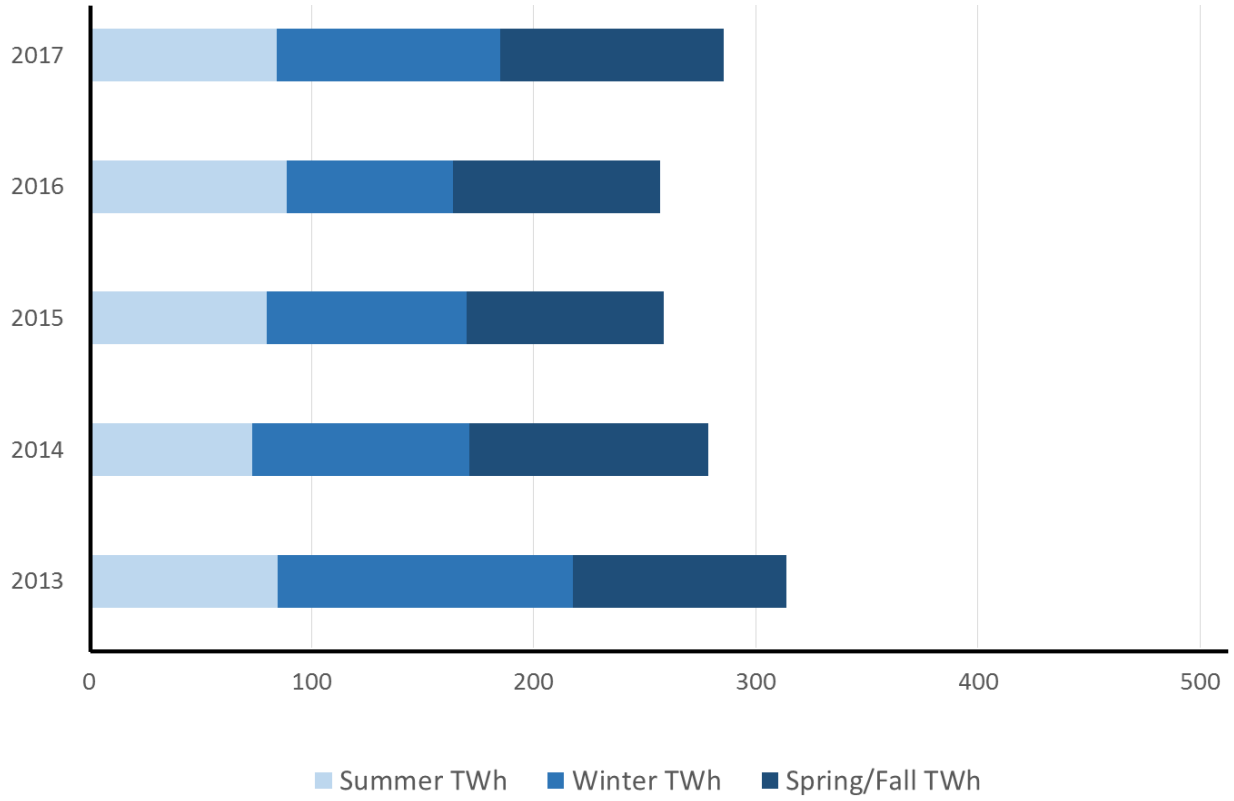



**Figure C.3: Total Net TWh of Potential Production Lost Due to Forced Outages 2013–2017**

**Table C.2: Net TWh of Potential Production Lost Due to Forced Outages, by Calendar Year 2013–2017**

| NERC | Total Annual TWh | Summer TWh-Months | Winter TWh-Months | Spring/Fall TWh-Months |
|---|---|---|---|---|
| 2013 | 313.7 | 84.8 | 132.9 | 96.0 |
| 2014 | 278.6 | 73.6 | 97.4 | 107.6 |
| 2015 | 258.5 | 79.9 | 89.9 | 88.7 |
| 2016 | 257.0 | 89.1 | 74.5 | 93.4 |
| 2017 | 285.7 | 84.6 | 100.3 | 100.7 |

Based on five years of data, the following observations can be made:

- Outages from severe storms in the last quarter of 2012, such as Hurricane Sandy, continued through first quarter of 2013 and are responsible for the increased production lost in Winter 2013.[154]
- The shoulder months of Spring/Fall in 2014, 2016, and 2017 have higher forced outage net TWh than the corresponding summer or winter periods.

Further analysis into the causes of forced outages considered the impact of weather. The percentage of net TWh of potential production lost due to weather-related forced outage cause codes reported each year ranges from two

[154] Winter includes the months of December, January, and February. When analysis is performed on a calendar year basis, as for this report, these three months are included from the same calendar year. Summer includes May through September; all other months are categorized as Spring/Fall. For this analysis, the season of a forced outage is associated with the season in which the start date of the event was reported in that year; therefore, when an event continues into the next year, a new event record is created in January, resulting in the event impacts being categorized as occurring in the winter of the following year as well.

AMERICAN OVERSIGHT



EXT-18-2615-C-000141

percent to four percent annually. This indicates that while weather does cause major headlines, the overall effect of weather on the fleet is minimal. The real impacts of weather-related events are localized impacts and of relatively short duration.

To gain additional insight into the drivers for the reported net TWh of potential production lost due to forced outages, the top 10 forced outage causes were examined to determine their impact on the annual total of net TWh of potential production lost. The number of events reported in the top 10 forced outage causes represent between seven percent and 12 percent of all forced outage events reported annually while contributing an average of 27 percent to the annual total megawatt hours lost. **Table C.3** shows the contribution of the top 10 forced outage causes to net TWh of potential production lost on a NERC-wide basis over the period 2012–2017. With the exception of 2016, winter periods show the highest percentage of potential production lost for the top 10 forced outage causes.

**Table C.3: Percentage of Top 10 Forced Outage Causes to Net TWh of Potential Production Lost over the Period 2013–2017**

| NERC | Total Annual TWh | Summer TWh | Winter TWh | Spring/Fall TWh |
|---|---|---|---|---|
| 2013 | 32% | 7% | 15% | 10% |
| 2014 | 28% | 6% | 11% | 11% |
| 2015 | 24% | 7% | 9% | 8% |
| 2016 | 25% | 8% | 8% | 9% |
| 2017 | 24% | 6% | 10% | 8% |

The top 10 causes vary annually, and the contribution from each of the top 10 causes to the total megawatt hours lost varies as well. **Table C.4** lists the top 10 forced outage causes on an annual basis in order of the most impactful cause to the least, based on annual net MWh of potential production lost due to forced outages.

**Table C.4: Top 10 Cause Codes as Percentages of Annual Net MWh of Potential Production Lost due to Forced Outages**

| Rank | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| **1** | Waterwall (Furnace wall) 6.2% | Waterwall (Furnace wall) 7.7% | Waterwall (Furnace wall) 7.0% | Waterwall (Furnace wall) 6.9% | Waterwall (Furnace wall) 5.5% |
| **2** | Main Transformer 4.1% | Lack of Fuel (interruptible supply of fuel) 3.6% | Main Transformer 5.7% | Main Transformer 4.6% | Other Exciter Problems 3.1% |
| **3** | Rotor - General 3.2% | Main Transformer 3.2% | First Reheater 2.5% | Stator Windings, Bushings, and Terminals 3.2% | Unattributed Vibration of Turbine Generator 2.4% |
| **4** | Second Superheater 3.0% | Second Superheater 2.7% | Lack of Fuel (interruptible supply of fuel) 1.7% | Other Exciter Problems 2.6% | Main Transformer 2.3% |
| **5** | Operator Error 2.8% | First Reheater 2.5% | Second Superheater 1.6% | Flood 2.1% | Buckets or Blades 2.2% |

AMERICAN OVERSIGHT



EXT-18-2615-C-000142

| Table C.4: Top 10 Cause Codes as Percentages of Annual Net MWh of Potential Production Lost due to Forced Outages | | | | | |
|---|---|---|---|---|---|
| **Rank** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **6** | Stator Windings, Bushings, and Terminals 2.2% | Emergency Generator Trip Devices 1.8% | First Superheater 1.5% | First Reheater 1.9% | Stator Windings, Bushings, and Terminals 2.0% |
| **7** | Stator - General 2.0% | Other Low Pressure Turbine Problems 1.7% | Boiler - Miscellaneous 1.5% | Second Superheater 1.7% | Other Miscellaneous problems 1.8% |
| **8** | Hurricane 2.0% | AC Conductors and Buses 1.6% | Generator Vibration 1.5% | Other Miscellaneous Generator Problems 1.6% | Second Superheater 1.7% |
| **9** | Rotor Windings 1.9% | First Superheater 1.6% | Other Boiler Tube Leaks 1.4% | Residual Heat Removal/Decay Heat Removal System 1.5% | Bunker Structures 1.5% |
| **10** | First Reheater 1.8% | Boiler – Miscellaneous 1.5% | Other Exciter Problems 1.4% | Other Boiler Tube Leaks 1.5% | Flood 1.4% |

Several outage causes appear in the top 10 more often than others: Weather-related outages in 2012 due to Hurricane Sandy resulted in flooding impacted several units that continued to report forced outages into 2013 and 2014. Lack of Fuel occurs within the top causes in 2014 and 2015. In 2017, three new cause codes entered the top 10: Unattributed vibration of Turbine Generator, Buckets or blades, and Bunker structures. **Table C.5** lists the recurring cause codes and number of years that the cause code appears in the top 10.

| Table C.5: Recurring Top 10 Cause Codes | | |
|---|---|---|
| **Code** | **Description** | **Number of Years in Top 10 Causes** |
| 1000 | Waterwall (Furnace wall) | 5 |
| 1050 | Second Superheater | 5 |
| 3620 | Main Transformer | 5 |
| 1060 | First Reheater | 4 |
| 4609 | Other Exciter Problems | 3 |
| 4520 | Stator Windings, Bushings, and Terminals | 3 |
| 1040 | First Superheater | 2 |
| 9131 | Lack of Fuel (interruptible supply of fuel) | 2 |
| 1090 | Other Boiler Tube Leaks | 2 |
| 1999 | Boiler–Miscellaneous | 2 |

AMERICAN OVERSIGHT



EXT-18-2615-C-000143

The Second Superheater (1050), Waterwall (1000), and First Reheater (1060) are all related to tube leaks in the respective systems. Given the amount of steam generating units that make up the fleet, the magnitude of these outages would not be unusual. These are not uncommon failures that occur in normal operation.

Both the Main Transformer (3620) and Stator Windings (4520) are high on the list. These items are the result of a very low likelihood event occurring that has a high impact. Most plants do not have spares available for these assets because the likelihood of failure is very low. However, if an event does occur, it can take several months to remedy, causing the event to show very high on this cause code list.

Wind performance data reporting requirements have been developed, and a phased-in reporting process began in 2017 and continues through 2020.

- **January 1, 2017**: Voluntary reporting
- **January 1, 2018:** Mandatory reporting for plants with total installed capacity of 200 MW or larger
- **January 1, 2019:** Mandatory reporting for plants with total installed capacity of 100 MW or greater
- **January 1, 2020:** Mandatory reporting for plants with total installed capacity of 75 MW or greater

There are 357 wind generation groups/subgroups across 155 entities that are currently set up for reporting in Wind GADS. NERC, through the GADSWG, will begin to provide analysis of wind generation performance as part of this report when sufficient data are available.

2017 performance of the BPS generation system measured in daily MW rating losses due to unplanned outages of conventional generators was the best over the five most recent years.

**GADSWG Future Considerations:**

- GADSWG might consider requiring additional design data from the conventional generating units to help improve analytics on the generating fleet and its possible impacts to BES reliability.
- GADSWG might continue to investigate seasonal performance trends for all types of reported generation. As the generation fleet continues to shift toward natural-gas-fired units, and the overall age of the fleet reduces, new emerging trends must be examined to identify common outage concerns across fuel types.
- GADSWG might examine outage cause codes at the system level instead of the component level to see if further insight can be gained.

AMERICAN OVERSIGHT



EXT-18-2615-C-000144

# Appendix D: Analysis of Demand Response Data

## Overview

In 2017, the DADSWG continued efforts to improve data collection and reporting through outreach and development of training materials. Future DADSWG efforts are focused on improving data collection, updating existing materials, developing additional guidance documents, maintaining data quality, and providing observations of demand response contributions to reliability.

## Demand Response Programs

Demand Response Registered Program data provides important information about the individual programs that include product and service type, relationships to other entities and programs, and monthly registered capacities. BAs and Distribution Providers (DPs) that administer demand response programs that have been commercially in service for at least 12 months with 10 MW or more of enrolled capability are required to report into DADS. In accordance with two 2015 FERC orders,[155] reporting by Purchasing-Scheduling Entities and Load-Serving Entities was discontinued after the Summer 2016 reporting period.

DADS data are reported semiannually as summer and winter seasons with the summer season representing program data from April 1 through September 30 and the winter season representing program data from October 1 to March 31 of the following year. This report includes data reported through September 2017.

### Registered Capacity

**Figure D.1** represents the registered capacity MW for all demand response registered programs in NERC; registered capacity for summer is based on August of each year, and winter is based on January of each year. The total registered capacity during Summer 2017 shows an eight percent increase over 2016, and an increase during the winter period of two percent. Over the five-year period of 2013 to 2017, summer and winter enrolled demand response capacity increased by 17 percent and 20 percent, respectively.

It is important to note that the demand response registered capacity is considered fungible (resources and associated capacities are interchangeable). For example, an entity's reported demand response program may be an aggregation of individual resources and each year the individual resources could be from different sources and programs.

[155] Orders RR15-4-000: http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order_RBR_ROP_20150319_RR15-4.pdf and RR-15-4-001: http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order_RBR_ROP_10152015_RR15-4.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000145

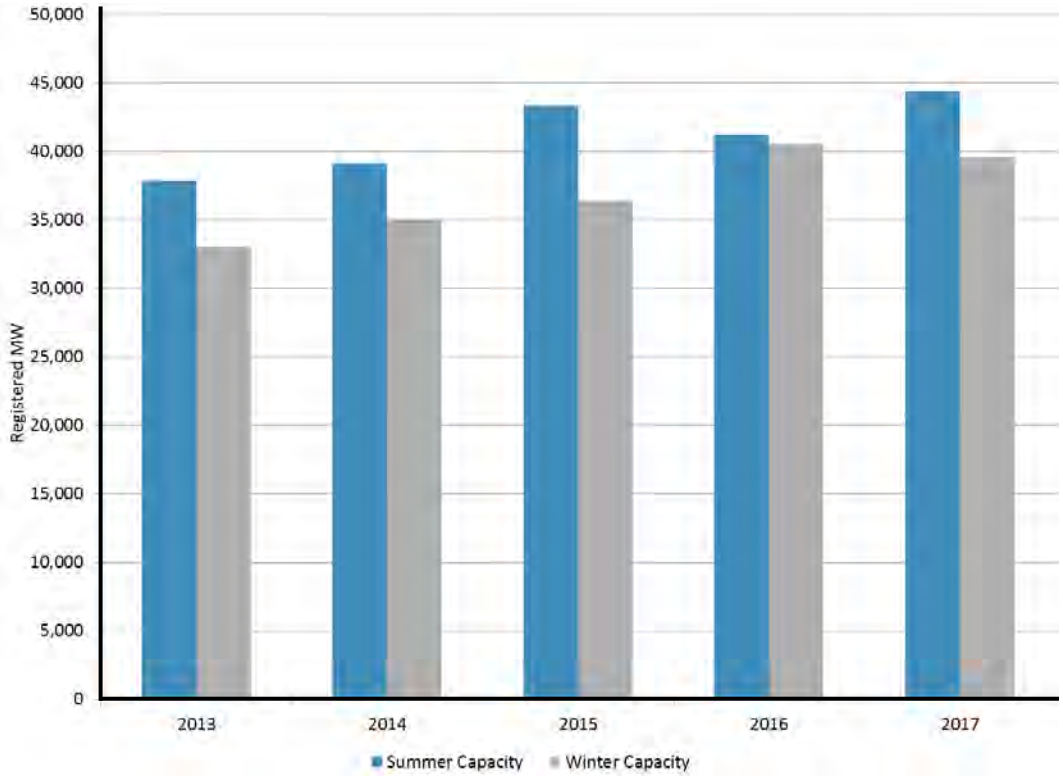



**Figure D.1: Registered Demand Response Capacity MW by Season for All Registered Programs, 2013–2017**

## Product and Service Types

The webDADS portal collects information about demand response programs based on product type and product service type. Current product types in DADS include Energy, Capacity, and Reserves. **Figure D.2** shows the registered capacity MW of demand response across NERC for Summer 2013–2017 and Winter 2013–2017 by reported product and service type.

AMERICAN OVERSIGHT



EXT-18-2615-C-000146

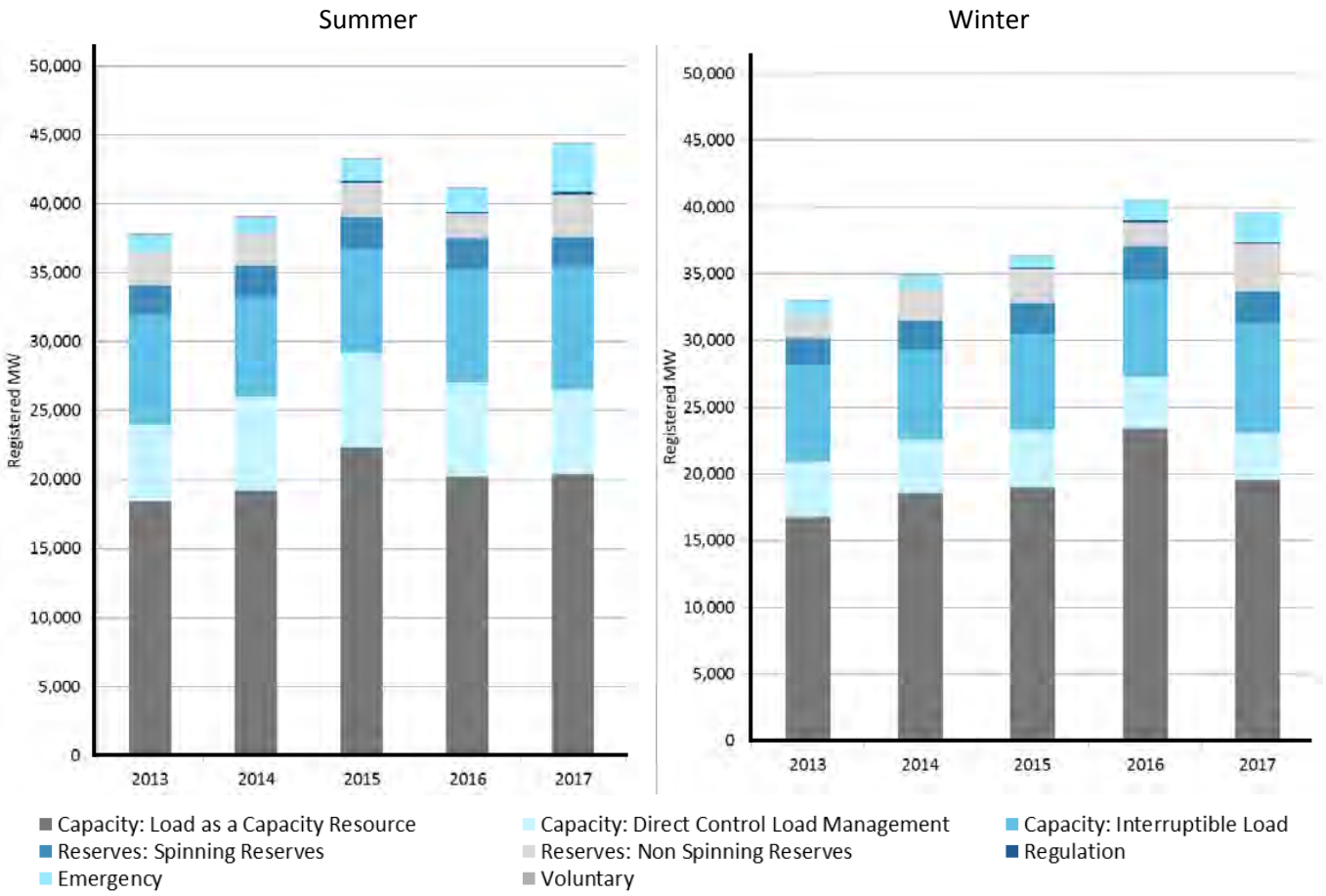



**Figure D.2: Registered Demand Response Capacity MW by Service Type and Season, 2013–2017**

A review of available capacity registered for each service type supports the following observations:

- Demand Response program enrollment shows growth in non-spinning reserves in both seasons.
- Load as a Capacity Resource and Interruptible Load continue to attract the highest enrollment. Some resources may also be eligible to provide in other Service Types—only unique MW are shown.
- Continued impacts to Load as a Capacity Resource are due in part to changes in 2016 environmental regulations for Emergency Engines.
- Changes in enrollment due to regulatory policies in some areas have resulted in an eight percent increase in summer enrollment and redistribution of existing demand response resources to other service types, such as Non-Spinning Reserves and Emergency.

## Demand Response: Reliability Events

Demand response programs are deployed by system operators that are monitoring conditions on the grid. Demand response program rules may require advanced notification for the deployment of these resources that can be several hours ahead of when the emergency condition actually occurs. As the potential for the emergency condition approaches, many operators have more responsive demand response resources that may be deployed with as little as 10 minutes of notification to ramp and/or curtail load.

Reliability event reasons reported and summarized in DADS where demand response supports the BPS are categorized as one of three types of events: forecast or actual reserve shortage, reliability event, or frequency control.

AMERICAN OVERSIGHT

EXT-18-2615-C-000147

EXT-18-2615-C-000148

Reserve shortage events tend to be driven by extreme weather events. For example, the following events all resulted in demand response deployment increases: the polar vortex of 2014 and extreme heat conditions on the East Coast and Northeast during 2013 and the West Coast during the summer of 2015. Reliability events can occur at almost any time, day, or month. These can typically be caused by a large number of unit trips or extreme weather that occurs during periods when the generation fleet is going through fleet maintenance periods in the fall and spring. Frequency control reliability events are a type of event that is more local and in isolated areas. For example, a large unit trip may cause a frequency disturbance, which is then arrested by the instantaneous tripping of loads using under-frequency relays installed at facilities of demand response resources.

**Figure D.3** and **Figure D.4** show the number of demand response event days each month in a season from January 2013 through September 2017.[156] The black diamond in each column indicates the number of calendar days in a month when demand response was deployed for a reliability event. The stacked bars show the number of days that demand response events occurred in each NERC Region. When the stacked bar exceeds the black diamond, it is an indication that multiple Regions had demand response events on the same day within the month.

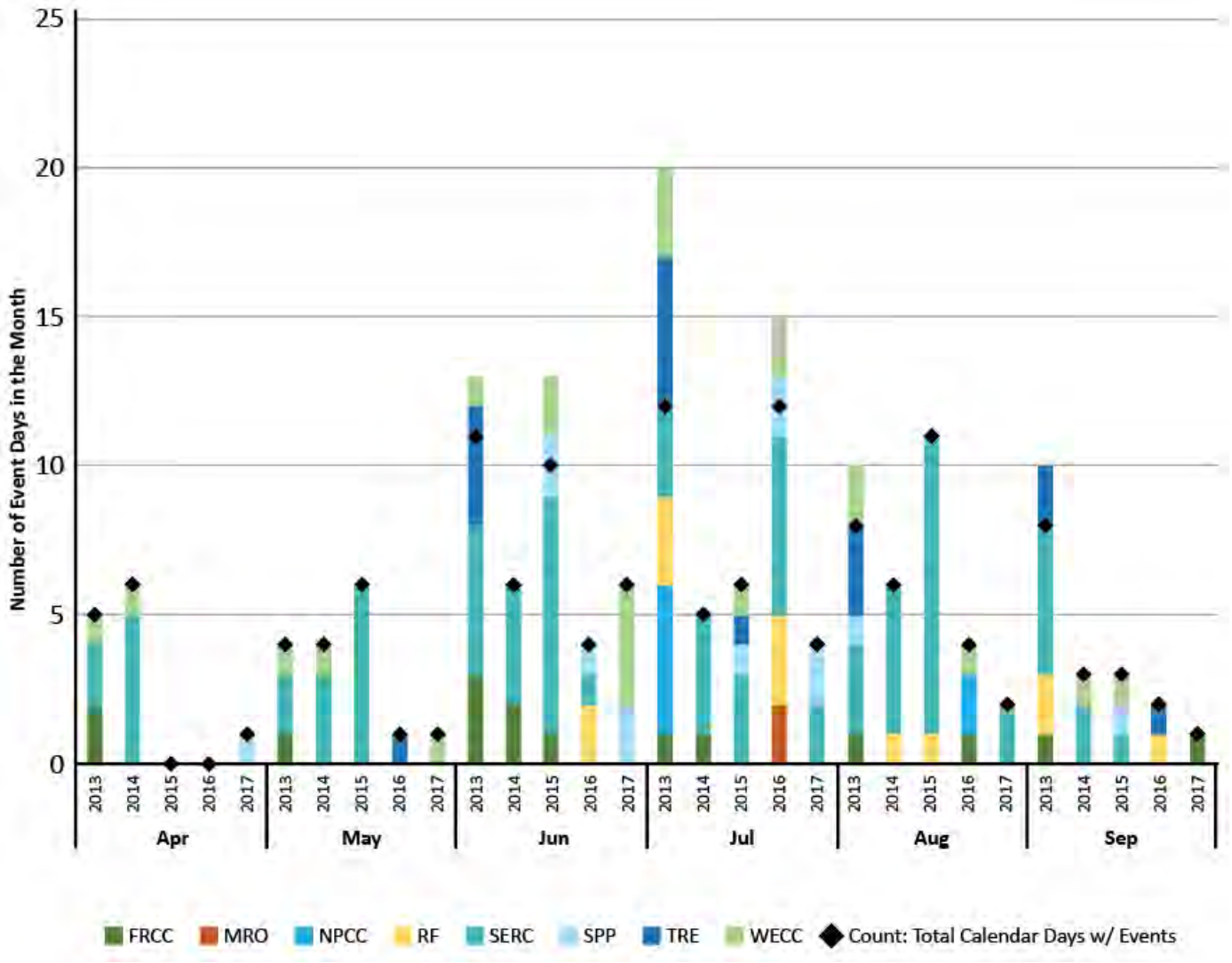



**Figure D.3: Summer Demand Response Event Days by Month and Region, 2013–2017**

[156] Event data for October 2017 through December 2017 are not reported until after publication of this report.



AMERICAN OVERSIGHT

The peak number of events of demand response capacity during this five-year period occurred during the summer peak season and is especially evident during June and July of 2013. The second highest number of demand response deployments occurred during July of 2016. The frequency of deployment events in Summer 2017 was lower than the previous four years with some Regions having no demand response event days. For example, Summer 2016[157] had 23 calendar days with deployments while Summer 2017 had 15 calendar days with deployments (a 35 percent drop in the number of calendar days during which demand response was deployed). The impact of the polar vortex is also evident in the number of days and Regions that dispatched demand response in January 2014. Since 2015, winter deployments have dropped to single digits, due to warmer weather without the severity of the polar vortex events that occurred in 2014. Data for Winter 2017/2018 will not be reported until after the publication of this report.

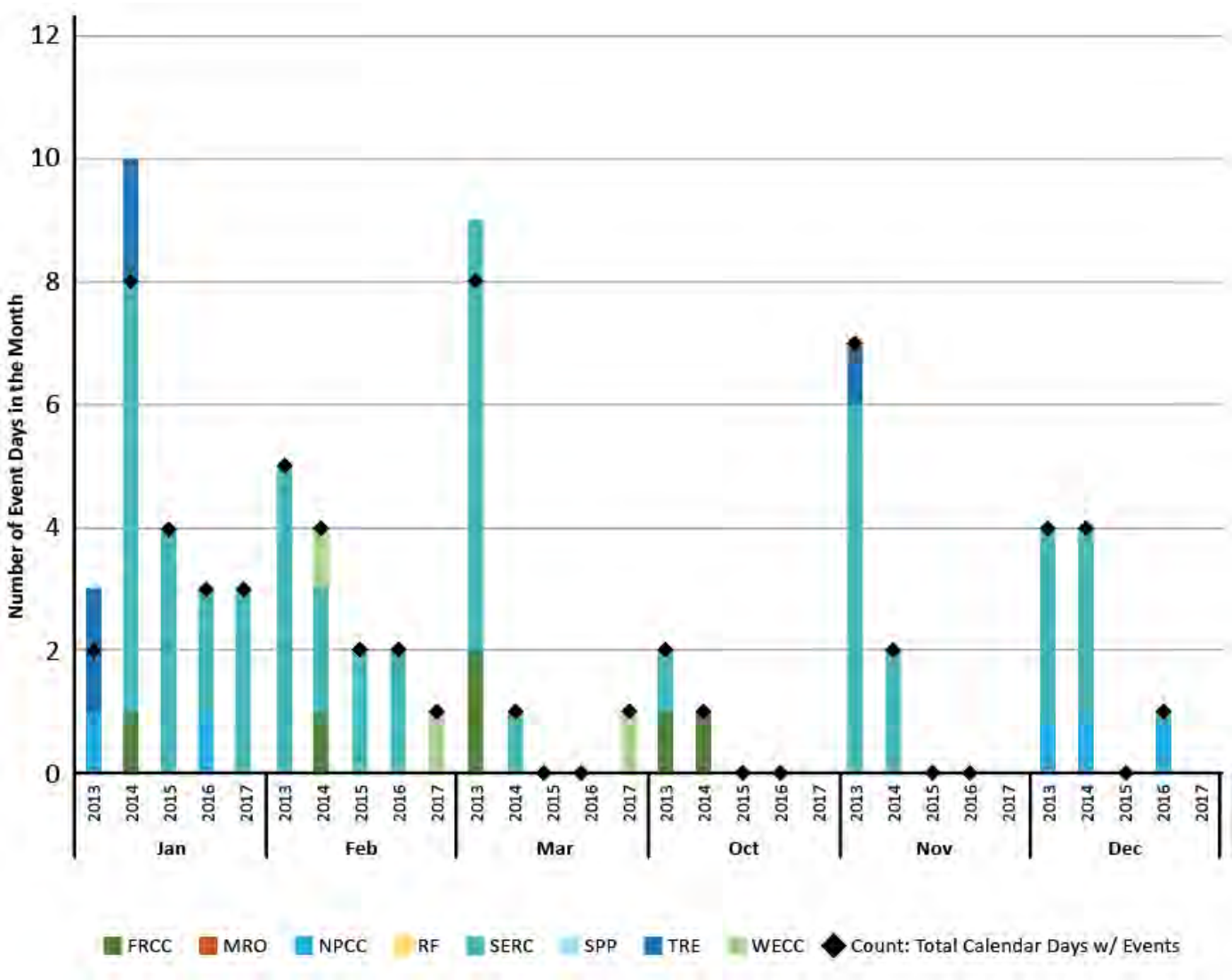



**Figure D.4: Winter Demand Response Event Days by Month and Region, 2013–2017**

## DADS Metrics

Four metrics have been developed by the DADSWG and approved by PAS. These metrics are described in **Table D.1**.

[157] Defined as April 1–September 30.



AMERICAN OVERSIGHT
EXT-18-2615-C-000149

| Table D.1: DADS Metrics | |
|---|---|
| **Metrics Title** | **Purpose** |
| **DADS Metric 1:** Realized Demand Reduction of Event Deployment by Month | Shows the amount of demand response reduction (in MW) provided during all the reliability events deployed in a given month by time of day. |
| **DADS Metric 2:** Dispatched Demand Response MW by Service Type | Reflects the cumulative megawatts of demand reduction dispatched by service type in reliability event days per month at the NERC or Region level |
| **DADS Metric 3:** Realized Demand Response MW by Service Type | Reflects the cumulative time weighted megawatts of demand reduction realized by service type in reliability event days per month at the NERC or Region level |
| **DADS Metric 4:** Demand Response Events by Month—Dispatched vs. Realized | Allows for the creation of a demand response realization rate for reliability events to be established and trending |

The DADSWG has completed analysis of Metrics 2, 3, and 4 and determined that Metrics 2 and 4 are most relevant for inclusion in this report. The working group will evaluate the DADS metrics, including the feasibility of implementing Metric 1.

## DADS Metric 2: Dispatched Demand Response MW by Service Type

The amount and types of demand response dispatched by season and year illustrate how much weather can affect the deployment of demand response. **Figure D.5** and **Figure D.6** show the cumulative dispatched MW of demand response by service type for summer and winter, respectively. During Summer 2013, the cumulative amount of demand response deployed over all events was nearly 20,000 MW with over 70 percent of the demand response dispatched from load as a capacity resource and nearly equal amounts of direct load control and interruptible load. Since 2013, the summers have been much milder, resulting in few deployments and more conservative utilization of demand response primarily from direct load control and interruptible load. During Summer 2016, deployments included a marked increase in the amount of demand response dispatched to provide spinning reserves. Events during Summer 2017 were exclusively to demand response resources with interruptible load and direct control load management capabilities.

AMERICAN OVERSIGHT



EXT-18-2615-C-000150

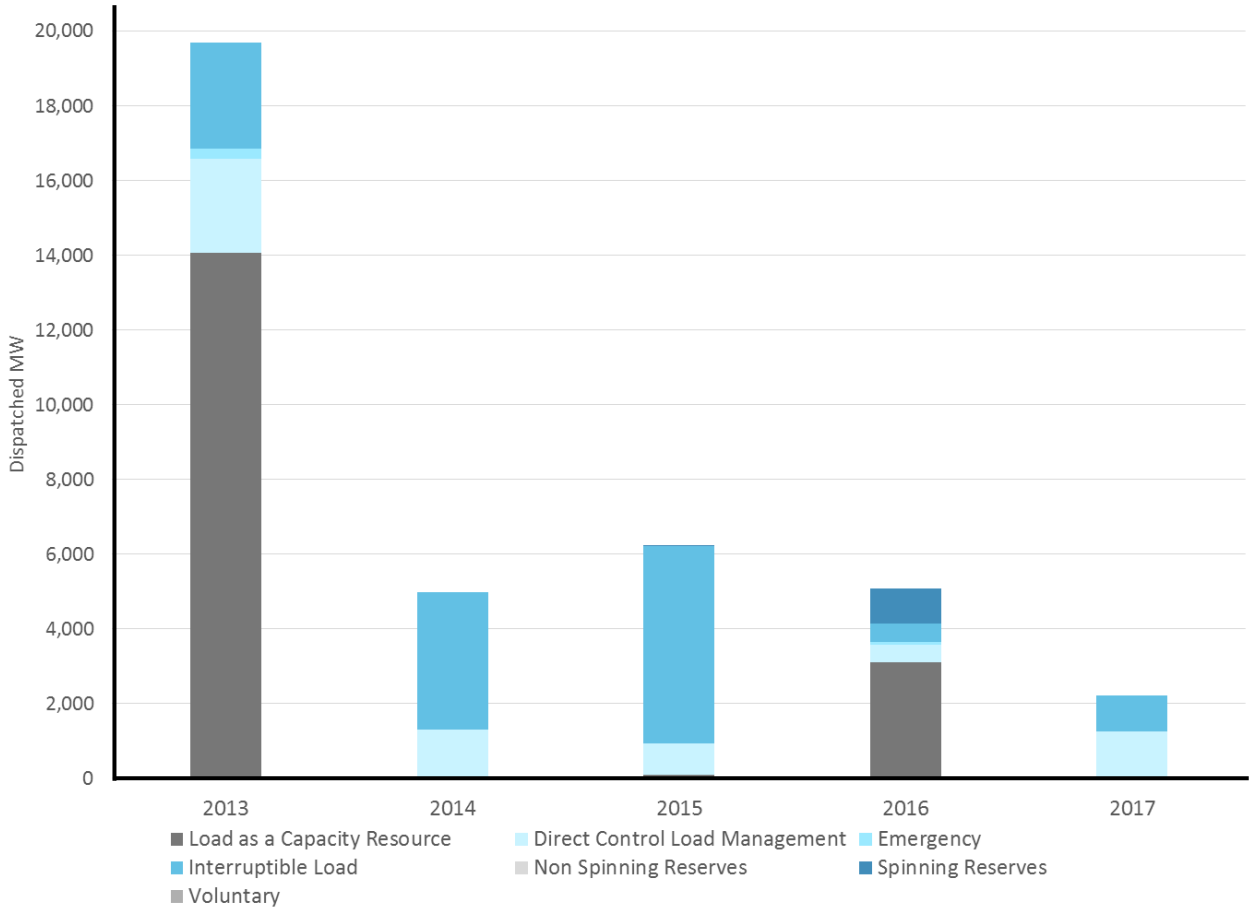



**Figure D.5: Cumulative Dispatched MW by Service Type for Summer Demand Response Events, 2013–2017**

Winter deployments of demand response are much less extensive as reflected in the cumulative MW dispatched each winter in the analysis period (**Figure D.6**). Deployments during the analysis period were primarily to demand response provided from interruptible load resources. During Winter 2013 and 2014, demand response providing reserves (spinning and non-spinning) accounted for almost one-third of the cumulative dispatched MW each year.

AMERICAN OVERSIGHT



EXT-18-2615-C-000151

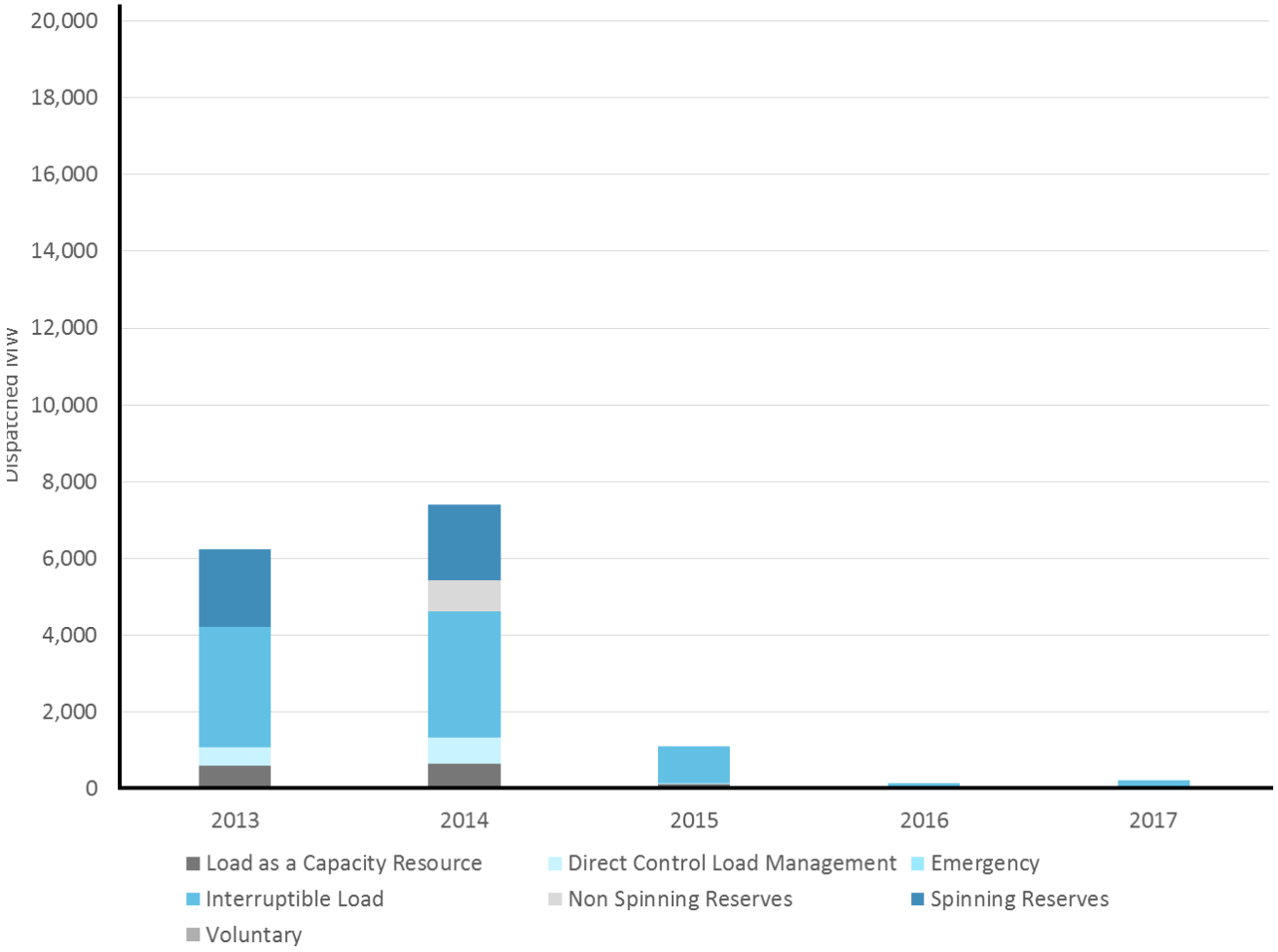



**Figure D.6: Cumulative Dispatched MW by Service Type for Winter Demand Response Events, 2013–2017**

## DADS Metric 4: Performance—Demand Response Events by Month—Dispatched vs. Realized

The effectiveness of demand response to support reliability is illustrated by a comparison of the cumulative dispatched MW to the average realized reduction MW each season and year. **Figure D.7** and **Figure D.8** show the cumulative dispatched MW and corresponding performance of all demand response types deployed in a season for each year of the analysis period.

During Summer 2013, demand response performed at 82 percent of its committed capacity (**Figure D.7**). This includes the deployment of voluntary and emergency types of demand response, which typically performs at a much lower rate (about 15 percent of registered) than other categories of demand response. The voluntary and emergency types of demand response deployed in Summer 2013 represented 1.3 percent of all dispatched MW. When Summer 2013 performance was evaluated without the voluntary and emergency types of demand response, there was a slight increase in performance, from 82.1 percent to 82.9 percent. Performance during Summer 2014—2016 was well above 90 percent, due to the amount and types of demand response deployed. Summer 2017 showed a slight drop in performance to 89 percent.

AMERICAN OVERSIGHT



EXT-18-2615-C-000152

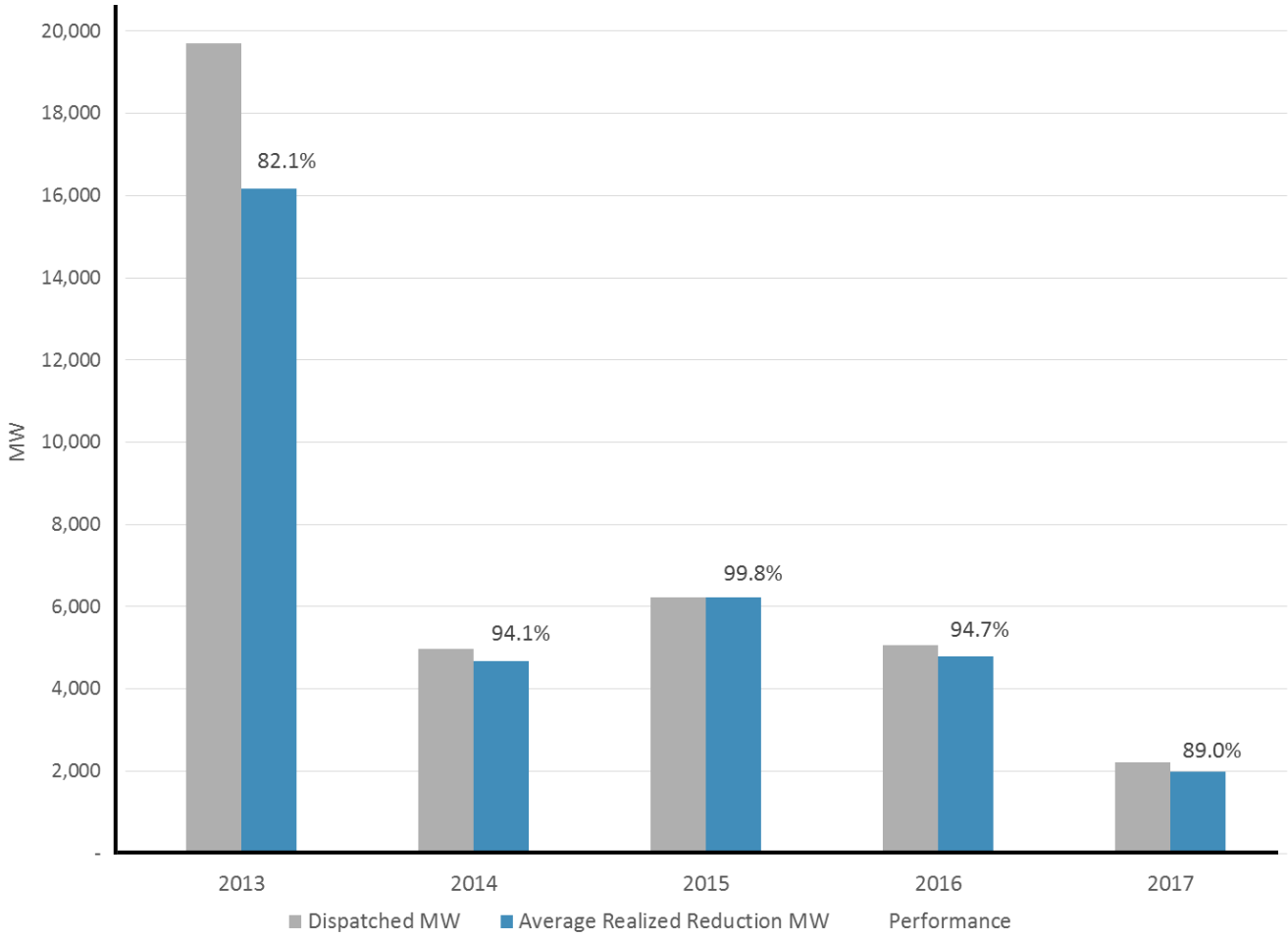



**Figure D.7: Demand Response Performance for Summer Demand Response Events, 2013–2017**

As previously stated, fewer MW of demand response were deployed in the winter seasons. Performance exceeded 96 percent during events in Winter 2013–2014 and 90 percent in 2015 (**Figure D.8**). Fewer than 100 MW of demand response were deployed in Winter 2016. During the Winter 2017 period, the 215 MW of demand response deployed performed above registered capability by 6.5 percent.

AMERICAN OVERSIGHT



EXT-18-2615-C-000153

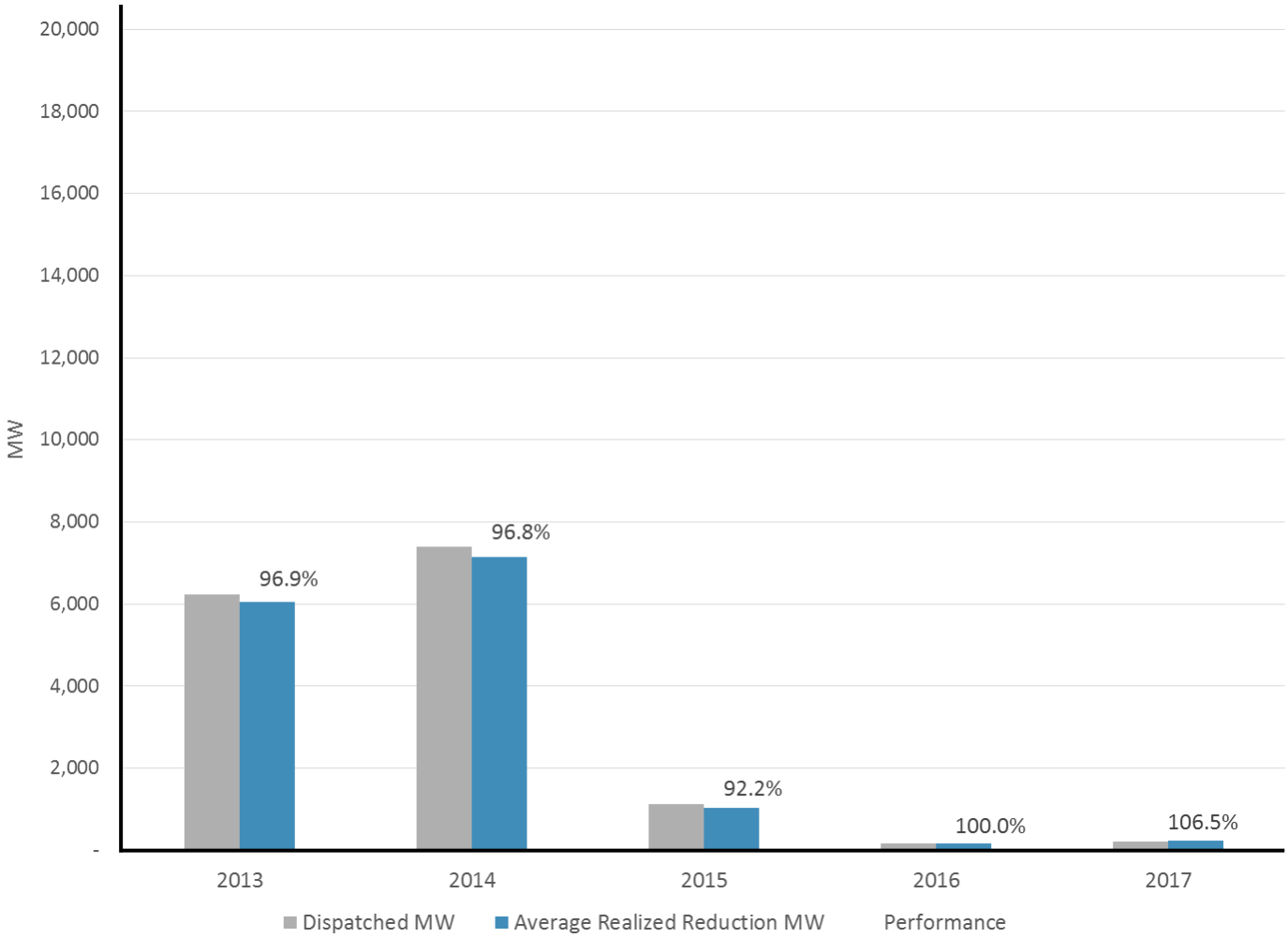



**Figure D.8: Demand Response Performance for Winter Demand Response Events, 2013–2017**

## Looking Ahead

The DADSWG is focused on improving the quality of the demand response data collected by NERC, and this will provide a better perspective on how this type of resource is being used to support reliability. To achieve this objective, the following initiatives are planned for 2018 and beyond:

- Development of an introductory video for DADS reporting.
- Completion of training and data quality materials to improve data reporting.
- Finalization and implementation of requirements for data reporting capabilities for market-based demand response programs that support reliability.

AMERICAN OVERSIGHT



EXT-18-2615-C-000154

# Appendix E: Frequency Response Statistics and Essential Reliability Services

Primary frequency response is essential for maintaining the reliability of the BPS. Frequency maintained within predefined limits is a key ALR performance outcome. Frequency response is necessary to support BPS reliability during loss of generation resource or loss of load disturbances that result in frequency deviations, and it is critical during system restoration efforts where frequency fluctuations must be controlled during load pick up and connection of additional resources. Frequency response and frequency control are often used synonymously and involve the ability of the BPS to support frequency following a disturbance.

Frequency response is comprised of the actions provided by the Interconnection to arrest and stabilize frequency in response to frequency deviations. Frequency response is provided from automatic generator governor response, load response (typically from induction motors), and facilities that provide an immediate change in output when frequency changes are detected by local device-level control systems.

## Metric M-4: Interconnection Frequency Response

The purpose of the M-4 metric is to determine frequency response trends for each Interconnection so that adequate primary frequency control is provided to arrest and stabilize frequency during frequency excursions of a predefined magnitude. Frequency response is bidirectional and Interconnection resources should respond to loss of resource events that result in low frequency to avoid tripping the first stage of UFLS as well as loss of load events that result in high frequency that could trip connected generation (over-frequency generation protection relays and turbine over-speed control action) from the BPS to prevent from damaging equipment.

The M-4 metric is based on methods defined in BAL-003-1.1 for developing a frequency response measure that is used to calculate an interconnection frequency response performance measure ($IFRM_{A\text{-}B}$) as the ratio of the resource or load megawatt (MW) loss that initiated the event to the difference of pre-disturbance frequency (Value A) and the stabilizing period frequency (Value B). Value A and Value B are average frequencies from $t_{-16}$ to $t_{-2}$ and $t_{+20}$ to $t_{+52}$, respectively, as defined in NERC BAL-003-1.1. The MW loss experienced by the Interconnection that initiated the event must be determined in order to calculate M-4 frequency response performance. Measurement of frequency performance in that time period is a surrogate for the lowest frequency during the event (the nadir or Point C) based on the limitations of system control and data acquisition scan rates. Below is the equation for calculating $IFRM_{A\text{-}B}$.

$$IFRM_{A-B} = \frac{MW\ Loss}{10 * \Delta f_{A-B}}$$

Where:
MW Loss = Resource or Load Output immediately prior to the start of the event
$f_{A\text{-}B}$ = Change in frequency from Value A to Value B

The predominant reliability risk is the frequency during the arresting period (from the start of the event at T=0 to the time of the nadir) of a frequency event when the low frequency nadir (Point C) is experienced in the first few seconds of the event. Performance during the arresting period is vital to ensure that customer load is not shed nor equipment damaged due to a low frequency nadir that activates the Interconnection's UFLS devices. The arresting and stabilizing periods are illustrated in **Figure E.1**.

AMERICAN OVERSIGHT

EXT-18-2615-C-000155

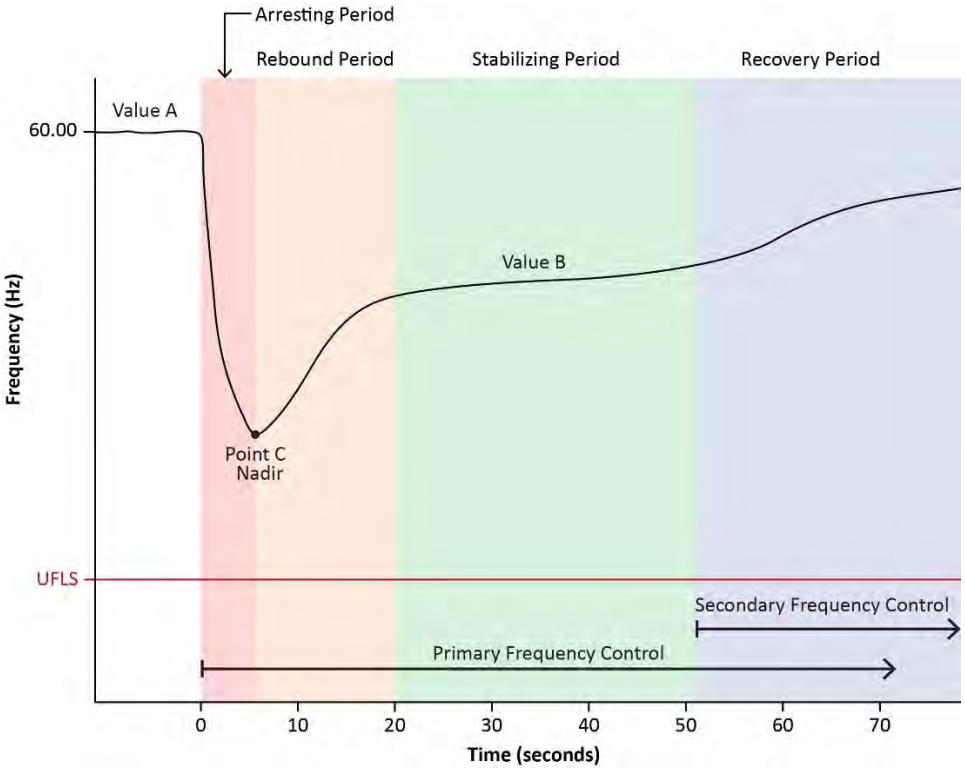



**Figure E.1: Primary and Secondary Frequency Control**

Figure E.1 shows the Arresting, Rebound, Stabilizing, and Recovery Periods of a frequency event following the loss of a large generation resource.

**Primary Frequency Control:** This is the action by the Interconnection to arrest and stabilize frequency in response to frequency deviations and has three time components; the arresting period, rebound period, and stabilizing period.

**Arresting Period:** This is the time from time zero (Value A) to the time of the nadir (Value C) and is the combination of system inertia, load damping, and the initial primary control response of resources acting together to limit the duration and magnitude of frequency change. It is essential that the decline in frequency is arrested during this period to prevent activation of automatic UFLS schemes in the Interconnection.

**Rebound Period:** This includes the effects of governor response in sensing the change in turbine speed as frequency increases or declines, causing an adjustment to the energy input of the turbine's prime mover. The Rebound Period can also be impacted by end-user customer or other loads that are capable of self-curtailment due to local frequency sensing and control during frequency deviations.

**Stabilizing Period:** This is the third component of primary frequency control following a disturbance when the frequency stabilizes following a frequency excursion. Value B represents the interconnected system frequency at the point immediately after the frequency stabilizes primarily due to governor action but before the contingent control area takes corrective automatic generation control action.

**Secondary Frequency Control:** This comes from either manual or automated dispatch of resources from a centralized control system. Secondary Control also includes initial reserve deployment for disturbances and maintains the minute-to-minute balance throughout the day: it is used to restore frequency to nominal following a disturbance and is provided by Operating Reserve, both Supplemental and Spinning.

AMERICAN OVERSIGHT

EXT-18-2615-C-000156

This report provides analysis of Interconnection frequency response performance during both the arresting period and the stabilizing periods. Value A, Point C, and Value B definitions can be found in the *2012 Frequency Response Initiative Report*[158] and the BAL-003-1.1 Reliability Standard[159] as well as in this appendix.

Deteriorating performance during the arresting period of a low frequency event can result in the loss of load due to activation of automatic UFLS schemes. Deteriorating performance during the rebound and stabilizing periods can result in increased risk of a subsequent frequency event occurring from a lower starting frequency. It is important to understand that performance in the arresting and stabilizing periods are only loosely coupled; therefore, an Interconnection can realize improved performance in one period and yet have decreased performance in the other.

NERC applies statistical tests to Interconnection frequency event datasets. An operating year, for frequency event purposes, runs from December of the previous year through November of the current year. For the 2013–2017 operating years, historical frequency response was statistically analyzed to evaluate performance trends for each Interconnection. An increasing trend over time indicates that frequency response is improving in that Interconnection. It should be noted that, in the 2017 operating year, no Interconnection had an M-4 frequency event where the IFRM was below its IFRO as defined in the BAL-003-1 Reliability Standard. It is important to note that there is a difference between the measured frequency response for a given event and the amount of response that was actually available at the time of the event. Measured response varies depending on starting frequency as well as the size of the resource loss. The amount of frequency response delivered is also dependent on the amount of frequency responsive reserves available (Operating Reserves—Supplemental and Operating Reserves—Spinning) in the Interconnection, sometimes called headroom, and the magnitude of the frequency deviation outside of the governor dead band settings. Calculated frequency response provided by an Interconnection can be influenced by the magnitude of the frequency deviation; relatively small deviations can indicate rather large response due to the normalization to 0.1 MW/Hz criteria.

Events for frequency response analysis are selected by the NERC RS's Frequency Working Group utilizing pre-defined event selection criteria. The event data are used to support Reliability Standard BAL-003-1 in addition to the M-4 metric and ERS Measure 4. Frequency data for all four Interconnections are available to NERC staff through the University of Tennessee by using the Frequency Monitoring Network (FNet). The data consists of sub-second high-speed frequency values (10 samples per second) captured by FNet's frequency disturbance recorders. Data for all significant frequency events are collected (e.g., Value A, Value B, Point C, Point C', and 300 seconds of high-speed frequency data surrounding the event) and stored on a spreadsheet for use in the event detection and selection process and various analyses.

NERC staff and Interconnection representatives analyze frequency data to detect events for inclusion in the Candidate Frequency Event List. The event detection criteria is slightly broader than the criteria used to select events for M-4 and BAL-003-1.1 to ensure that all the potential events are detected as shown in **Table E.1** below.

To be considered for inclusion in the Candidate Frequency Event List, a frequency event shall satisfy either of the following:

- The delta frequency measured between Value A and Point C is greater than or equal to the designated threshold found in **Table E.1** for the Interconnection where the event occurred
- The net MW loss for the event (either generation or load) is greater than or equal to the designated threshold found in **Table E.1** for the Interconnection where the event occurred.

[158] The *2012 Frequency Response Initiative Report* can be found at the following location: https://www.nerc.com/docs/pc/FRI_Report_10-30-12_Master_w-appendices.pdf

[159] The BAL-003-1.1 Reliability Standard can be found at the following location: https://www.nerc.com/pa/Stand/Reliability%20Standards/BAL-003-1.1.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000157

| Table E.1: M-4 Event Selection Criteria | | |
|---|---|---|
| **Interconnection** | $\Delta f_{AC}$ (mHz) ***or*** >= MW Loss | |
| **Eastern** | 36 | 800 |
| **Western** | 70 | 700 |
| **Texas** | 80 | 450 |
| **Québec** | 300 | 450 |

In the 2016 operating year, a change in selection criteria was implemented that included frequency events with a smaller MW loss if the event resulted in a sufficient frequency deviation. Note that this change resulted in a larger sample of events for all Interconnections as compared to previous years and is meant to capture frequency response performance over a wider range of operating conditions (e.g., those that might occur during light load conditions when less generation is on-line and therefore the inertia and governor response of the Interconnections might be reduced). Due to this change, results should be considered as any detected statistically significant difference in year-over-year performance that can be partially due to the criteria modification.

Note that frequency response (i.e., IFRO and IFRM) is expressed as negative numbers expressed in MW/0.1 Hz because the change in MW output should be in the opposite direction as the change in frequency. For purposes of illustration in this report, frequency response is expressed as an absolute value.

The NERC RS has identified issues related to the ability of existing generating resources to provide sustained frequency response, including incorrect governor dead-band and droop settings and/or plant or generator control logic. The NERC RS developed and NERC OC issued *Reliability Guideline: Primary Frequency Control v1.0 Final*[160] to provide technical guidance to the industry to address these issues.

The M-4 metric and NERC BAL-003-1 Reliability Standard calculate the IFRM in the context of the stabilizing period, which is the interval of 20 to 52 seconds after the start of the event that is known as Value B. The Value B average frequency is compared to pre-disturbance frequency, known as Value A, in addition to the total resource or load MW loss to determine the IFRM.

It is also important to understand the impact of the arresting period of a frequency event where Point C is the low frequency nadir experienced in the first 12 seconds of the event. Performance during the arresting period is vital to ensure that customer load is not shed nor equipment damaged due to a low frequency nadir that exceeds the Interconnection's UFLS settings.

**Figure E.2** illustrates a frequency deviation due to a loss of generation resource and the methodology for calculating frequency response in accordance with definitions in the BAL-003-1 Reliability Standard. The event starts at time t0 (00:00). Value A is the average frequency calculated from t-16 to t-2 seconds from t0, Point C is the lowest frequency point observed in the first 12 seconds after t0, and Value B is the average frequency from t+20 to t+52 seconds from t0. The difference between Value A and Value B is the change in frequency used for calculating primary frequency response. Frequency response is calculated as the ratio of the megawatts lost when a resource trips and the frequency deviation. Frequency response performance in the correct direction is expressed as a negative value since the resulting Interconnection change in megawatts should be in the opposite direction as the change in frequency. Frequency response with a more negative value indicates better response than a frequency response that is less negative or positive. For convenience of reporting and graphical representation, in this report frequency response is expressed as an absolute value. All events analyzed in this report had a response in the appropriate direction.

[160] The Primary Frequency Control Reliability Guideline can be found at the following location: http://www.nerc.com/comm/OC/Reliability%20Guideline%20DL/Primary_Frequency_Control_final.pdf

AMERICAN OVERSIGHT



EXT-18-2615-C-000158

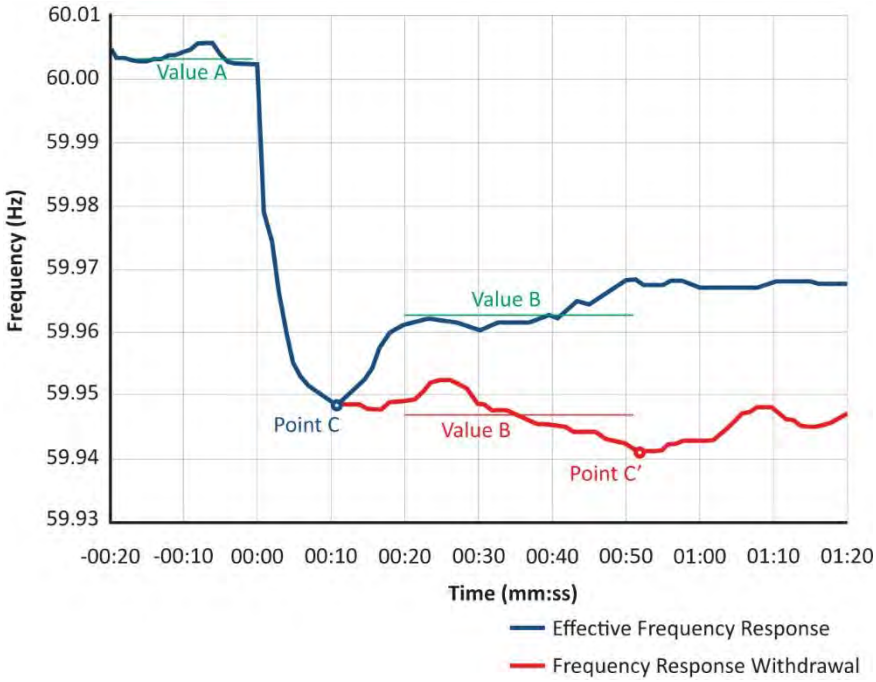



**Figure E.2: Criteria for Calculating Value A and Value B**

## Frequency Response Arresting Period Performance

Table E.2 through Table E.5 compare the frequency event statistics for the four Interconnections with an emphasis on performance during the arresting period as shown in Figure E.1. It is important to understand that frequency response is bidirectional with generating resources and loads capable of responding to frequency events that result in either high or low Interconnection frequency or loss of load or loss of generation, respectively. However, the predominate risk relevant to the arresting period of an event occurs during a low frequency event and results in the activation of UFLS relays that disconnect load from the system. As such the events analyzed in this section will be loss of resource events only and will exclude loss of load events that result in high frequency.

In the 2016 operating year, a change in selection criteria was implemented that included frequency events with a smaller MW loss if the event resulted in a sufficient frequency deviation. The purpose of this change was to increase the sample size of qualifying events in support of tests for statistical significance and to capture frequency response during a wider range of operating conditions.

**Table E.2: Frequency Event Statistics for Eastern Interconnection**

| Operating Year | Total Low Frequency Events | Mean Resource Loss (MW) | Mean Value A (Hz) | Mean Pt C (Hz) | Mean Value B (Hz) | Mean B-C Margin (Hz) | Mean Pt C-UFLS Margin (mHz) | Lowest Pt C (Hz) | Lowest Pt C-UFLS Margin (mHz) |
|---|---|---|---|---|---|---|---|---|---|
| 2013 | 32 | 1,157 | 60.000 | 59.950 | 59.948 | -0.001 | 0.450 | 59.909 | 0.409 |
| 2014 | 34 | 1,212 | 59.995 | 59.947 | 59.948 | 0.001 | 0.447 | 59.910 | 0.410 |
| 2015 | 36 | 1,103 | 59.996 | 59.948 | 59.950 | 0.002 | 0.448 | 59.928 | 0.428 |
| 2016 | 61 | 938 | 59.999 | 59.956 | 59.959 | 0.003 | 0.456 | 59.930 | 0.430 |
| 2017 | 79 | 851 | 60.003 | 59.959 | 59.963 | 0.004 | 0.459 | 59.935 | 0.435 |

AMERICAN OVERSIGHT



EXT-18-2615-C-000159

The following are observations from **Table E.2**:

- The mean Point C frequencies have increased each year since 2014.
- The lowest Point C to UFLS margin has increased each year since 2013, suggesting improvement in the arresting period.
- For all years studied the lowest Point C to UFLS margin was above 400 mHz, suggesting reduced risk during the arresting period.
- Statistical analysis indicates that, over the 2013–2017 operating years, the EI had an improving mean frequency response trend during the arresting period that was highly statistically significant (slope = 8E-06, p-value = 1.804E-08, Average Annual Increase = 2.93 mHz).

**Table E.3: Frequency Event Statistics for Texas Interconnection**

| Operating Year | Total Low Frequency Events | Mean Resource Loss (MW) | Mean Value A (Hz) | Mean Pt C (Hz) | Mean Value B (Hz) | Mean B-C Margin (Hz) | Mean Pt C-UFLS Margin (Hz) | Lowest Pt C (Hz) | Lowest Pt C-UFLS Margin (Hz) |
|---|---|---|---|---|---|---|---|---|---|
| 2013 | 40 | 721 | 59.997 | 59.836 | 59.896 | 0.061 | 0.536 | 59.732 | 0.432 |
| 2014 | 33 | 639 | 59.996 | 59.850 | 59.900 | 0.050 | 0.550 | 59.744 | 0.444 |
| 2015 | 34 | 642 | 59.999 | 59.866 | 59.912 | 0.046 | 0.566 | 59.728 | 0.428 |
| 2016 | 50 | 601 | 59.998 | 59.868 | 59.920 | 0.052 | 0.568 | 59.704 | 0.404 |
| 2017 | 48 | 568 | 60.002 | 59.876 | 59.930 | 0.054 | 0.576 | 59.733 | 0.433 |

The following are observations from **Table E.3**:

- The mean Point C frequencies and resulting Point C to UFLS margins have trended higher each year since 2013, suggesting improved overall primary frequency response in both the arresting period.
- The lowest Point C to UFLS margin was greater than 400 mHz for all years studied, suggesting reduced risk during the arresting phase of frequency events.
- Statistical analysis indicates that, over the 2013–2017 operating years, the TI had an improving mean frequency response trend during the arresting period that was highly statistically significant (slope = 3E-05, p-value = 3.02E-06, Average Annual Increase = 9.53 mHz).

**Table E.4: Frequency Event Statistics for Québec Interconnection**

| Operating Year | Total Low Frequency Events | Mean Resource Loss (MW) | Mean Value A (Hz) | Mean Pt C (Hz) | Mean Value B (Hz) | Mean B-C Margin (Hz) | Mean Pt C-UFLS Margin (Hz) | Lowest Pt C (Hz) | Lowest Pt C-UFLS Margin (Hz) |
|---|---|---|---|---|---|---|---|---|---|
| 2013 | 30 | 973 | 59.996 | 59.395 | 59.825 | 0.430 | 0.895 | 58.868 | 0.368 |
| 2014 | 24 | 806 | 60.004 | 59.413 | 59.836 | 0.423 | 0.913 | 58.986 | 0.486 |
| 2015 | 24 | 627 | 60.003 | 59.555 | 59.872 | 0.292 | 1.055 | 59.273 | 0.773 |
| 2016 | 31 | 740 | 59.998 | 59.487 | 59.859 | 0.372 | 0.977 | 59.019 | 0.519 |
| 2017 | 33 | 532 | 60.007 | 59.592 | 59.895 | 0.304 | 1.092 | 59.362 | 0.862 |

AMERICAN OVERSIGHT



EXT-18-2615-C-000160

The following are observations from **Table E.4**:

- The lowest Point C to UFLS margin was greater than 400 mHz for all years except 2013 with the largest margin of 862 mHz seen in 2017, suggesting reduced risk during the arresting phase of frequency events.
- Statistical analysis indicates that, over the 2013–2017 operating years, the QI had an improving frequency response trend during the arresting period that was highly statistically significant (slope = 0.0001, p-value = 4.07E-5, Average Annual Increase = 39.4 mHz).

**Table E.5: Frequency Event Statistics for Western Interconnection**

| Operating Year | Total Low Frequency Events | Mean Resource Loss (MW) | Mean Value A (Hz) | Mean Pt C (Hz) | Mean Value B (Hz) | Mean B-C Margin (Hz) | Mean Pt C-UFLS Margin (Hz) | Lowest Pt C (Hz) | Lowest Pt C-UFLS Margin (Hz) |
|---|---|---|---|---|---|---|---|---|---|
| 2013 | 13 | 945 | 59.993 | 59.887 | 59.924 | 0.037 | 0.387 | 59.843 | 0.343 |
| 2014 | 17 | 1095 | 60.001 | 59.880 | 59.917 | 0.036 | 0.380 | 59.671 | 0.171 |
| 2015 | 21 | 846 | 59.998 | 59.903 | 59.934 | 0.032 | 0.403 | 59.845 | 0.345 |
| 2016 | 47 | 734 | 60.008 | 59.918 | 59.956 | 0.037 | 0.418 | 59.819 | 0.319 |
| 2017 | 38 | 1067 | 60.001 | 59.887 | 59.939 | 0.052 | 0.387 | 59.697 | 0.197 |

The following are observations from **Table E.5**:

- After trending higher in previous years, the mean Point C frequencies were lower in 2017, which could suggest increased risk during the arresting period of an event; this could also be due to a significant increase in mean resource loss in 2017.
- For frequency events in the 2017 operating year, the lowest Point C frequency was above the first-step UFLS setting of 59.5 Hz by 197 mHz, which is the smallest margin since a frequency event margin of 171 mHz in 2014. The resource MW loss for these two events were 2685 MW and 2826 MW, respectively, more than double the mean resource MW loss for each year and close to the Resource Contingency Protection Criteria of 2740 MW defined in the 2012 *Frequency Response Initiative Report*. This suggests increased risk during the arresting period of frequency events. It should be noted that the WI IFRM performance was above its IFRO for both events where the UFLS margins were below 200 mHz.
- Statistical analysis indicates that, over the 2013–2017 operating years, the WI mean frequency response trend during the arresting period was neither statistically improving nor declining (slope = 0.0028, p-value = 0.2663).

# Frequency Response Stabilizing Period Performance

## Interconnection Frequency Response: Time Trends

The time trend analysis uses the Interconnection frequency response datasets for the 2013–2017 operating years. In this section, performance of frequency response measured in the stabilizing period and its changes in time are studied by investigating relationships between frequency response data and the explanatory variable time.[161] **Figure E.3** through **Figure E.6** show the Interconnection frequency response scatter plots with a linear regression line that

[161] That is frequency response is considered to be a stochastic process frequency response (T), where T changes from December 1, 2012 to November 30, 2017, and changes of frequency response (T) are studied, quantified, and statistically analyzed. Observations of this stochastic process are assumed to be independent because the frequency events are typically separated by a significant time interval and by location.

AMERICAN OVERSIGHT



EXT-18-2615-C-000161

represents changes of the mean frequency response and a quantile regression line that represents changes in the median frequency response. A significance of a linear or quantile regression is tested at the significance level of 0.05. The 95 percent confidence interval for slopes of both trend lines are shown as shaded areas. For each Interconnection, general trends for mean and median frequency response are similar, but their rates of change represented by a slope of the trend lines can be different.

It is important to note that there is a difference between the measured frequency response for a given event and the amount of response that was actually available at the time of the event. Measured response (IFRM) varies depending on starting frequency as well as the size of the resource loss. The amount of frequency response delivered is also dependent on the amount of frequency responsive reserves available in the Interconnection, sometimes called headroom, and the magnitude of the frequency deviation outside of the governor dead band settings.

### *Eastern Interconnection*

In the EI, a linear regression line (a trend line for the mean frequency response) and a quantile regression line (a trend line for the median frequency response), shown in **Figure E.3,** both have negative slopes. However, the negative slopes are not statistically significant because the statistical test on significance of each regression fails to reject the null hypothesis about zero slope at a standard significance level (for M-4 mean p-value=0.34 and for M-4 median p-value=0.85). These results imply that it is very likely that the negative slopes may have occurred simply by chance. It leads to the inference that, on average and on median, the EI frequency response has been neither increasing nor decreasing significantly from 2013–2017.

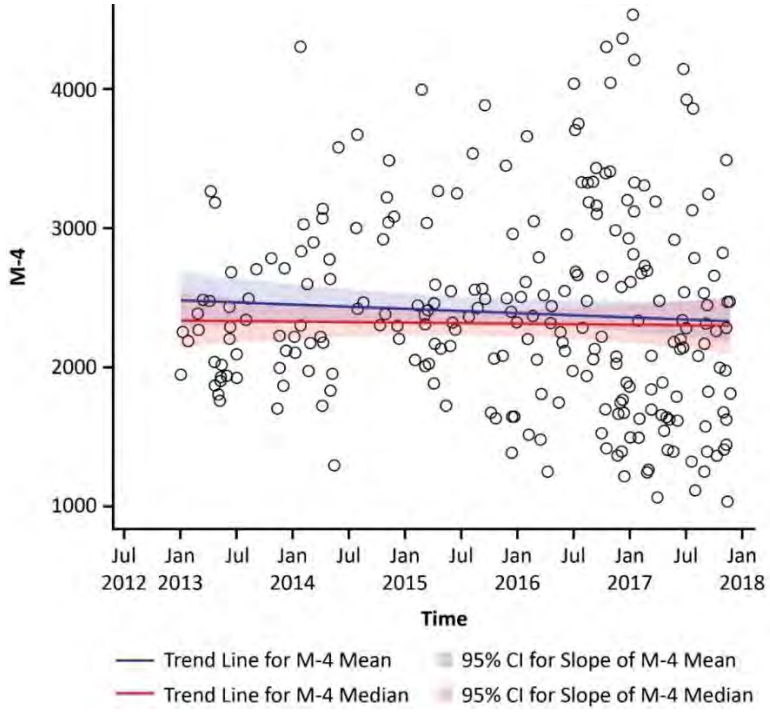



**Figure E.3: Eastern Interconnection Frequency Response Scatter Plot and Time Trend Lines for Mean and Median Frequency Response 2013–2017**

### *Texas Interconnection*

In the TI, a linear regression line (a trend line for the mean frequency response) and a quantile regression line (a trend line for the median frequency response), shown in **Figure E.4**, both have positive slopes. The slope 0.0000008 of the trend line for mean is statistically significant (p-value=0.033), and it is unlikely that the increasing trend for the mean may have occurred simply by chance. On average, the TI frequency response grew from 2013–2017 at the annual


AMERICAN OVERSIGHT
EXT-18-2615-C-000162

rate of 25.86 MW/0.1 Hz. On the other hand, the slope of the trend line for the median is not significant because the statistical test on significance of quantile regression fails to reject the null hypothesis about zero slope at a standard significance level (p-value=0.09). It leads to the inference that from 2013–2017, the TI frequency response has been increasing as measured by the mean and has been steady as measured by the median.

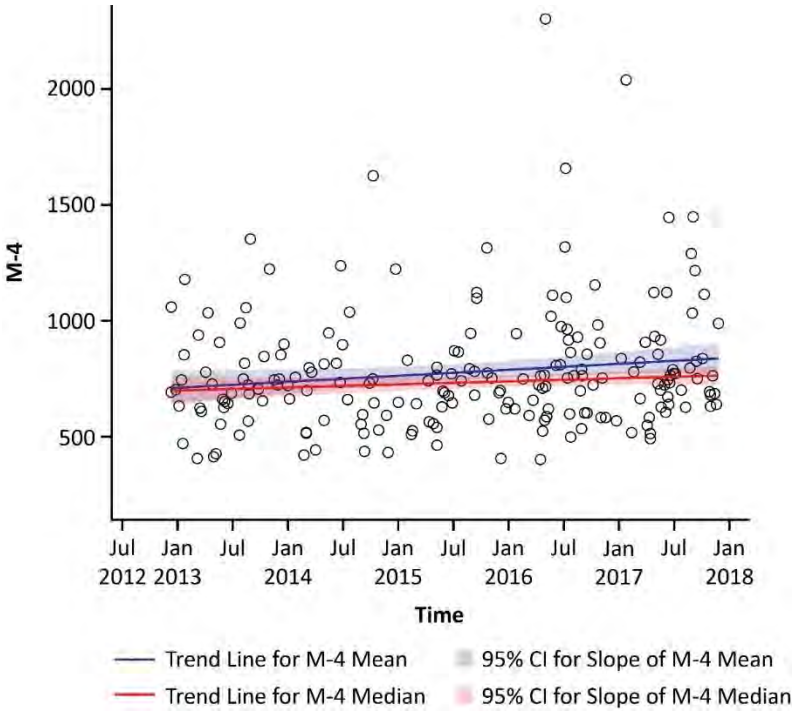



**Figure E.4: Texas Interconnection Frequency Response Scatter Plot and Time Trend Lines for Mean and Median Frequency Response 2013–2017**

### *Québec Interconnection*

In the QI, a linear regression line (a trend line for the mean frequency response) and a quantile regression line (a trend line for the median frequency response), shown in **Figure E.5**, both have positive slopes. However, these positive slopes are not statistically significant because the statistical test on significance of each regression fails to reject the null hypothesis about zero slope at a standard significance level (for M-4 mean p-value=0.22 and for M-4 median p-value=0.59). These results imply that it is very likely that the increasing trends may have occurred simply by chance. It leads to the conclusion that, on average and on median, the QI frequency response has been neither increasing nor decreasing significantly from 2013–2017.

AMERICAN OVERSIGHT



EXT-18-2615-C-000163

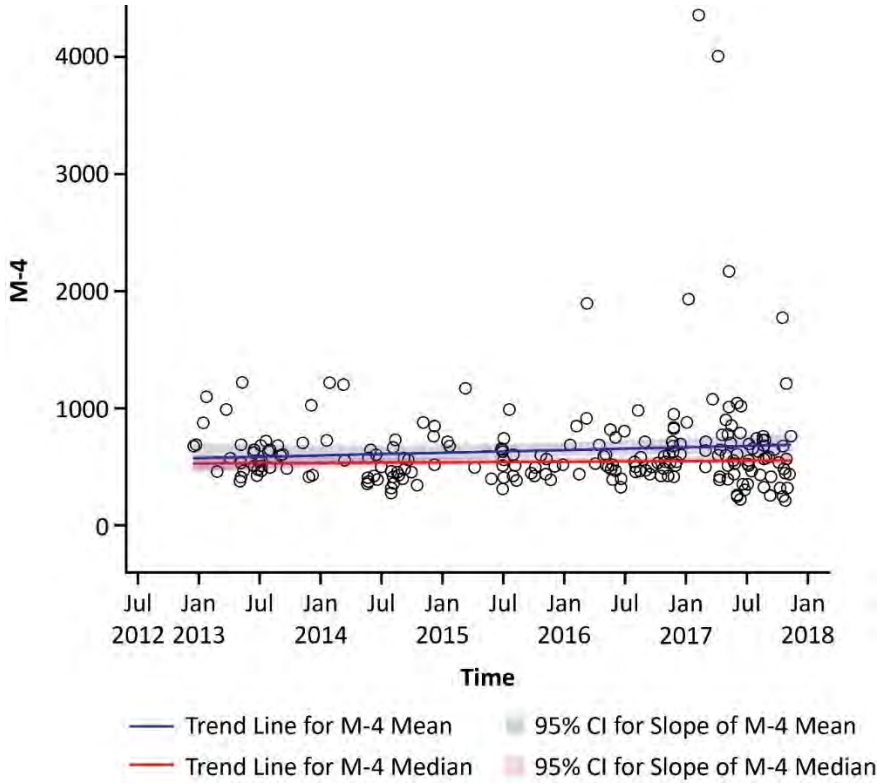



**Figure E.5: Québec Interconnection Frequency Response Scatter Plot and Time Trend Lines for Mean and Median Frequency Response 2013–2017**

### *Western Interconnection*

In the WI, a linear regression line (a trend line for the mean frequency response) and a quantile regression line (a trend line for the median frequency response), shown in **Figure E.6**, both have positive slopes. The slope 0.00000425 of the trend line for mean is highly statistically significant (p-value=0.003). Even though an upper extreme outlier for the September 20, 2017 event with frequency response=6645 MW/0.1Hz affects the mean, a slope of the trend line for the mean of the dataset with this outlier removed would still be statistically significantly positive (p-value=0.006). It should be noted that the September 20 event occurred in the early morning hours on a day when significant amounts of solar PV generation resources were increasing in output; this likely being a contributing factor in the high frequency response performance for that event. These results imply that it is highly unlikely that the positive slope for the mean may have occurred simply by chance. On average, the WI frequency response grew from 2013–2017 at the annual rate of 134.0 MW/0.1 Hz. On the other hand, the statistical test on significance of quantile regression fails to reject the null hypothesis about zero slope at a standard significance level (p-value=0.08). It leads to the inference that from 2013–2017, the WI frequency response has been increasing as measured by the mean and has been neither increasing nor decreasing as measured by the median.

AMERICAN OVERSIGHT



EXT-18-2615-C-000164

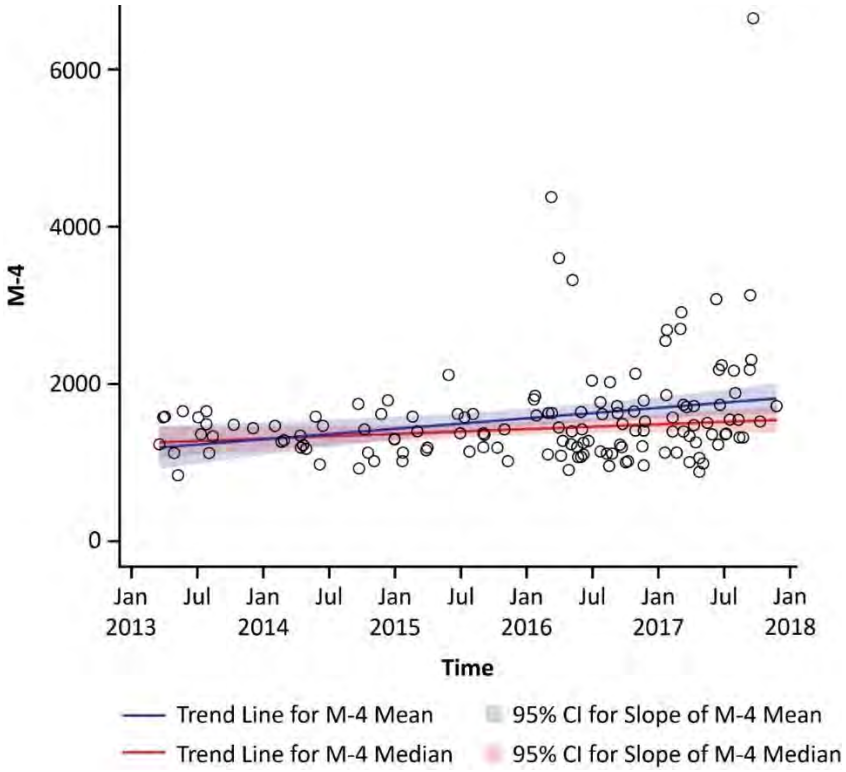



**Figure E.6: Western Interconnection Frequency Response Scatter Plot and Time Trend Lines for Mean and Median Frequency Response 2013–2017**

## Interconnection Frequency Response: Year-Over-Year Changes

The analyses of changes by year use the Interconnection frequency response datasets for the 2013–2017 operating years. The sample statistics are listed by year in **Table E.6** through **Table E.9**. The last column lists the number of frequency response events that fell below the absolute IFRO.[162]

**Figure E.7** through **Figure E.10** show the box and whisker plots of the annual distribution of the Interconnection's frequency response. The boxes enclose the interquartile range with the lower edge at the first (lower) quartile and the upper edge at the third (upper) quartile. The horizontal line drawn through a box is the second quartile or the median. The lower whisker is a line from the first quartile to the smallest data point within 1.5 interquartile ranges from the first quartile. The upper whisker is a line from the third quartile to the largest data point within 1.5 interquartile ranges from the third quartile. The data points beyond the whiskers represent outliers, or data points more than or less than 1.5 times the upper and lower quartiles, respectively. The diamonds represent the mean.

Next, to statistically compare parameters of the annual distributions of the frequency response listed in **Table E.6** to **Table E.9**, ANOVA's Fisher's Least Significant Difference test and t-test were used to analyze all pair-wise changes in the mean frequency response, the Mann-Whitney and Wilcoxon test was used to compare annual medians, and the tests on the homogeneity of variances to analyze changes in variance (thus, in the standard deviation).[163]

In the 2016 operating year, a change in selection criteria was implemented that included frequency events with a smaller MW loss if the event resulted in a sufficient frequency deviation. Note that this change resulted in a larger sample of events for all Interconnections as compared to previous years. Due to this change, results of the statistical

[162] The Information Filing to FERC can be found at the following location: http://www.nerc.com/FilingsOrders/us/NERC Filings to FERC DL/Final_Info_Filing_Freq_Resp_Annual_Report_03202015.pdf

[163] All tests at the significance level 0.05.



AMERICAN OVERSIGHT
EXT-18-2615-C-000165

tests should be taken with caution as any detected statistically significant difference in year-over-year performance can be partially due to the criteria modification.

### *Eastern Interconnection*

Table E.6 and Figure E.7 illustrate EI's year-to-year changes in the annual average and median frequency response as well as in its variability. There were no frequency events with frequency response below IFRO in 2013–2017.

**Table E.6: Descriptive Statistics for Eastern Interconnection Frequency Response**

| Operating Year (OY) | Number of Events | Mean Frequency Response | Standard Deviation | Median | Minimum | Maximum | IFRO for the OY | Number of Events with Frequency Response Below the IFRO |
|---|---|---|---|---|---|---|---|---|
| **2013–2017** | **244** | **2,397** | **714** | **2,300** | **1,043** | **4,536** | **N/A** | **0** |
| 2013 | 32 | 2,239 | 384 | 2,201 | 1,707 | 3,264 | 1,002 | 0 |
| 2014 | 34 | 2,640 | 627 | 2,620 | 1,300 | 4,304 | 1,014 | 0 |
| 2015 | 36 | 2,480 | 577 | 2,372 | 1,636 | 3,997 | 1,014 | 0 |
| 2016 | 61 | 2,483 | 767 | 2,369 | 1,253 | 4,307 | 1,015 | 0 |
| 2017 | 81 | 2,257 | 823 | 2,143 | 1,043 | 4,536 | 1,015 | 0 |

Figure E.7 shows the box plots of the annual distribution of the Eastern frequency response.

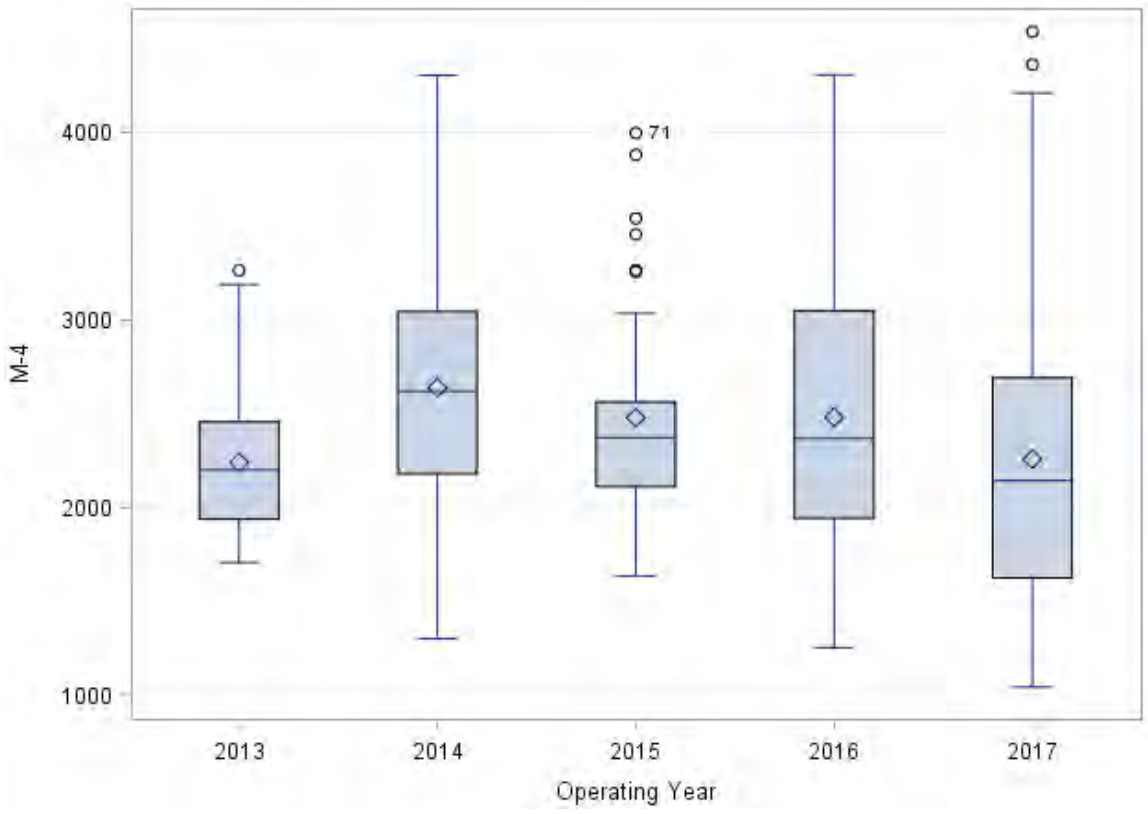



**Figure E.7: Box Plots of Eastern Interconnection Frequency Response Distribution by Operating Year 2013–2017**



AMERICAN OVERSIGHT
EXT-18-2615-C-000166

The 2017 frequency response events comprised the largest dataset with the greatest variability over the five years. This is indicated by the standard deviation, the minimum and the maximum values, and a wider spread of values in a scatter plot shown in **Figure E.3.** The 2017 variance was statistically significantly larger than in 2013 and 2015. The mean frequency response and the median frequency response in 2017 were statistically similar to all other years except 2014, which was the best year from 2013–2017.

### *Texas Interconnection*

**Table E.7** and **Figure E.8** illustrate TI's year-to-year changes in the annual average and median frequency response as well as in its variability. Over the five years, there was one frequency event with frequency response below IFRO (in 2015).

**Table E.7: Descriptive Statistics for Texas Interconnection Frequency Response**

| Operating Year (OY) | Number of Events | Mean Frequency Response | Standard Deviation | Median | Minimum | Maximum | IFRO for the OY | Number of Events with Frequency Response Below the IFRO |
|---|---|---|---|---|---|---|---|---|
| **2013–2017** | **206** | **782** | **263** | **733** | **404** | **2,304** | **N/A** | **1** |
| 2013 | 40 | 752 | 218 | 705 | 407 | 1,354 | 286 | 0 |
| 2014 | 33 | 727 | 246 | 720 | 426 | 1,628 | 413 | 0 |
| 2015 | 34 | 756 | 197 | 722 | 469 | 1,316 | 471 | 1 |
| 2016 | 50 | 807 | 316 | 752 | 404 | 2,304 | 381 | 0 |
| 2017 | 49 | 835 | 283 | 764 | 491 | 2,041 | 381 | 0 |

**Figure E.8** shows the box plots of the annual distribution of the Texas frequency response.

AMERICAN OVERSIGHT



EXT-18-2615-C-000167

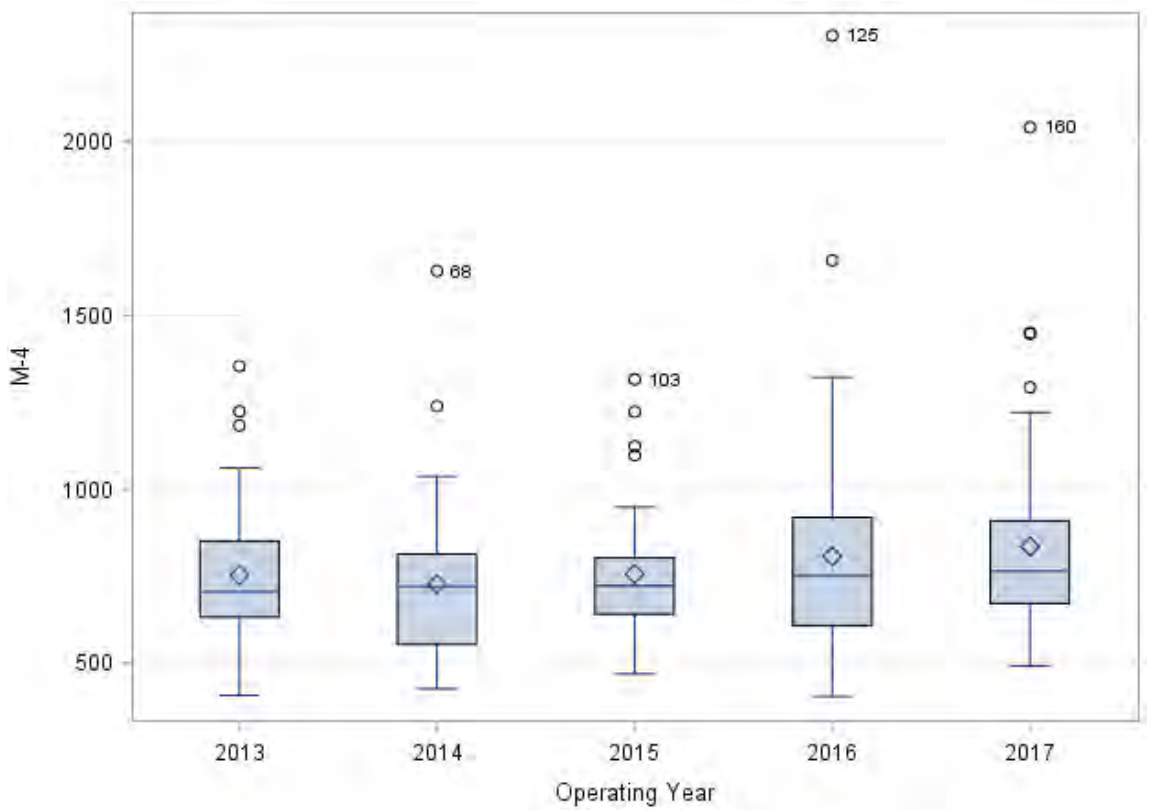



**Figure E.8: Box Plots of Texas Frequency Response Distribution by Operating Year 2013–2017**

There were no significant changes in the mean and the median frequency response of the annual distributions from 2013 to 2017 operating years, with the 2017 mean and median being numerically largest ones over the five years. The variances in 2016 and 2017 were two highest partly due to the extreme upper outliers seen in a box plot (**Figure E.8**) and in a scatter plot (**Figure E.4**).

### *Québec Interconnection*

**Table E.8** and **Figure E.9** illustrate QI's year-to year changes in the average and median frequency response as well as in its variability. There were no frequency events with frequency response below IFRO in 2013–2017.

**Table E.8: Descriptive Statistics for Québec Interconnection Frequency Response**

| Operating Year (OY) | Number of Events | Mean Frequency Response | Standard Deviation | Median | Minimum | Maximum | IFRO for the OY | Number of events with Frequency Response below the IFRO |
|---|---|---|---|---|---|---|---|---|
| **2013-2017** | **217** | **648** | **435** | **558** | **221** | **4,355** | **N/A** | **0** |
| 2013 | 35 | 624 | 188 | 596 | 389 | 1,228 | 179 | 0 |
| 2014 | 33 | 555 | 236 | 469 | 288 | 1,231 | 180 | 0 |
| 2015 | 29 | 586 | 190 | 532 | 320 | 1,167 | 183 | 0 |
| 2016 | 47 | 616 | 248 | 538 | 336 | 1,900 | 179 | 0 |
| 2017 | 73 | 748 | 676 | 599 | 221 | 4,355 | 179 | 0 |

AMERICAN OVERSIGHT



EXT-18-2615-C-000168

Figure E.9 shows the box plots of the annual distribution of the QI frequency response.

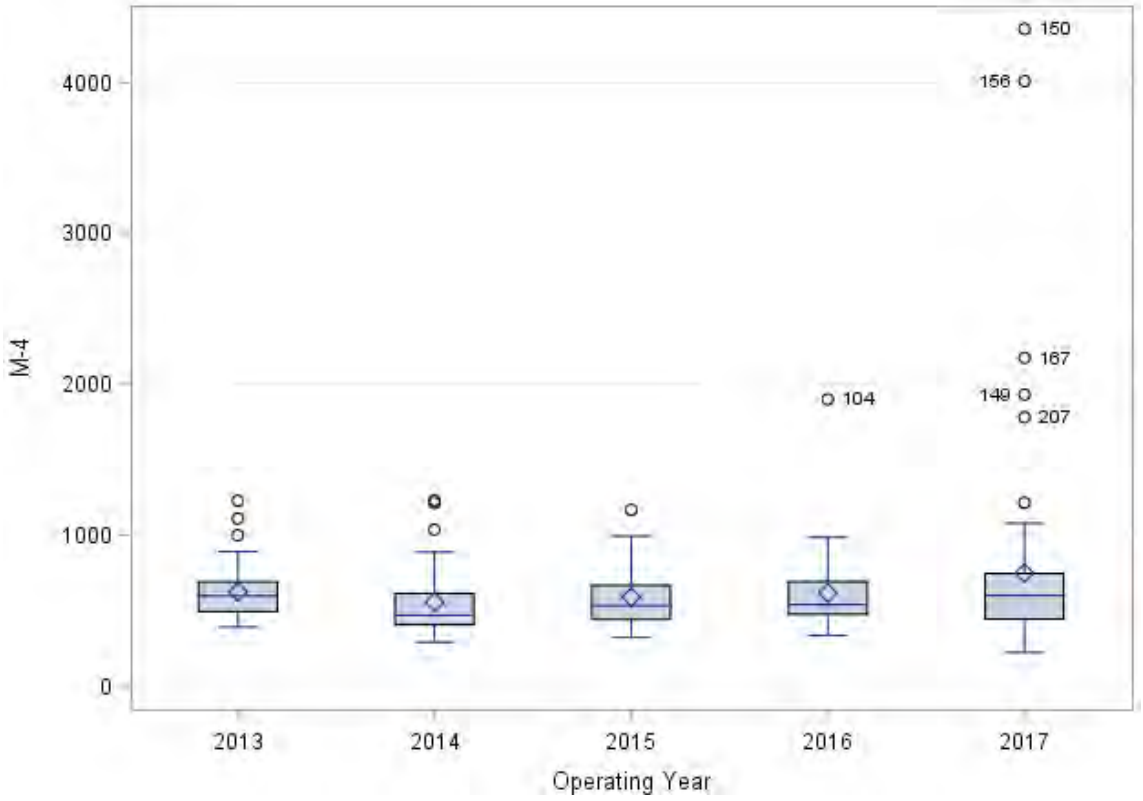



**Figure E.9: Box Plots of Québec Interconnection Frequency Response Distribution by Operating Year 2013–2017**

The 2017 frequency response events comprised the largest dataset with the greatest variability over the five years. This is indicated by the standard deviation, minimum and maximum values, and a wider spread of values in a scatter plot (Figure E.5). The 2017 variance was statistically significantly highest over the five years. The mean frequency response and the median frequency response in 2017 were numerically largest than for all other years and statistically larger than the 2014 mean and median, respectively.

### *Western Interconnection*

Table E.9 lists the average and median frequency response as well as in its variability. Over the five years, there were two frequency events with frequency response below IFRO (in 2013 and 2014).

**Table E.9: Descriptive Statistics for Western Interconnection Frequency Response**

| Operating Year (OY) | Number of Events | Mean Frequency Response | Standard Deviation | Median | Minimum | Maximum | IFRO for the OY | Number of Events with Frequency Response Below the IFRO |
|---|---|---|---|---|---|---|---|---|
| **2013–2017** | **139** | **1,556** | **697** | **1,400** | **822** | **6,645** | **N/A** | **2** |
| 2013 | 13 | 1,374 | 251 | 1,463 | 822 | 1,645 | 840 | 1 |
| 2014 | 17 | 1,295 | 235 | 1,266 | 905 | 1,743 | 949 | 1 |



AMERICAN OVERSIGHT
EXT-18-2615-C-000169

| Table E.9: Descriptive Statistics for Western Interconnection Frequency Response | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Operating Year (OY) | Number of Events | Mean Frequency Response | Standard Deviation | Median | Minimum | Maximum | IFRO for the OY | Number of Events with Frequency Response Below the IFRO |
| 2015 | 21 | 1,361 | 269 | 1,349 | 1,008 | 2,099 | 906 | 0 |
| 2016 | 47 | 1,545 | 673 | 1,400 | 902 | 4,368 | 858 | 0 |
| 2017 | 41 | 1,836 | 968 | 1,539 | 870 | 6,645 | 858 | 0 |

**Figure E.10** shows the box plots of the annual distribution of the WI frequency response.

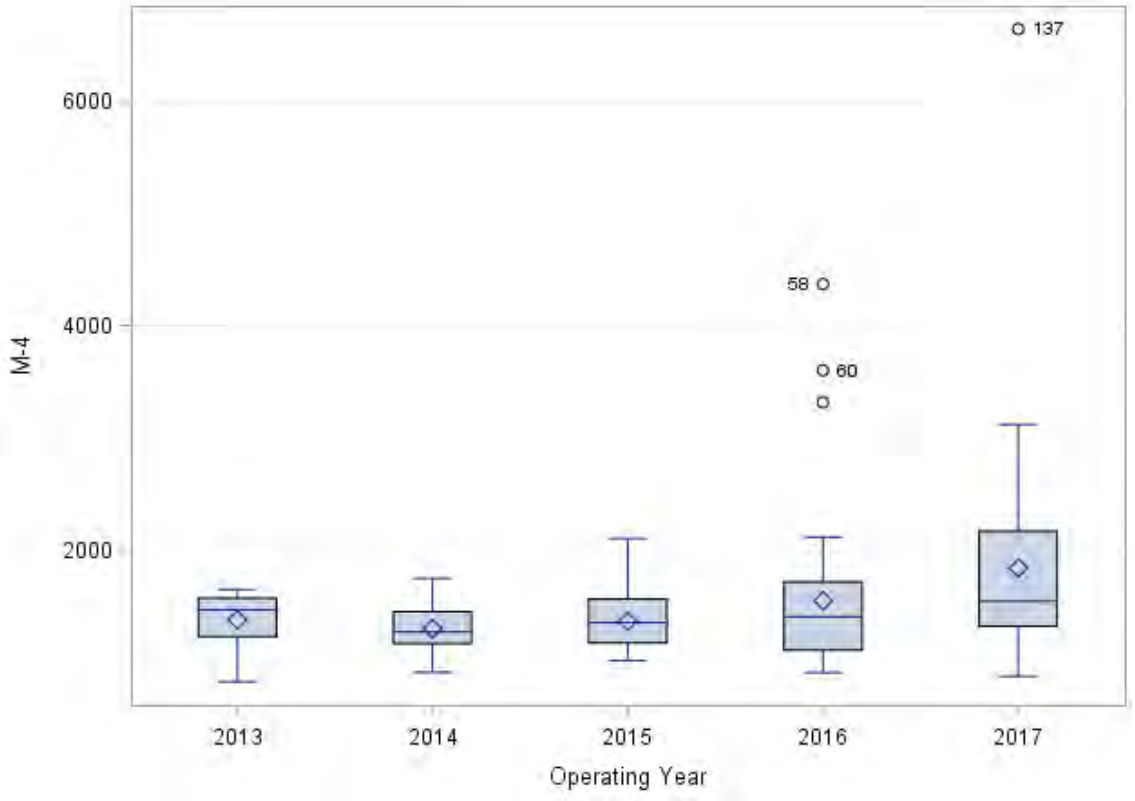



**Figure E.10: Box Plots of Western Interconnection Frequency Response Distribution by Operating Year 2013–2017**

The 2017 frequency response events comprised the largest dataset with the greatest variability over the five years. This is indicated by the standard deviation, the minimum and the maximum values, and a wider spread of values in a scatter plot (**Figure E.6)** and the box plots (**Figure E.10).** The 2017 variance was statistically significantly larger than in 2014, 2015, and 2016 (the 2013 data set is too small for a valid statistical inference). The mean frequency response and the median frequency response in 2017 were statistically similar to 2016 and significantly greater than in 2014 and 2015. It leads to an observation that 2017 was the best performance year from 2013–2017. It should be noted that the upper outlier event in 2017 occurred in the early morning hours on a day when significant amounts of solar photovoltaic generation resources were increasing output; this likely being a contributing factor in the high frequency response performance for that event.

AMERICAN OVERSIGHT

EXT-18-2615-C-000170

## Interconnection Frequency Response: Analysis of Distribution

### *Eastern Interconnection*

Figure E.11 shows the histogram of the EI frequency response for the 2013–2017 operating years based on the 244 observations of M-4. This is a right-skewed distribution with the median of 2,300 MW/0.1 Hz, the mean of 2,397 MW/0.1 Hz, and the standard deviation of 714 MW/0.1 Hz.

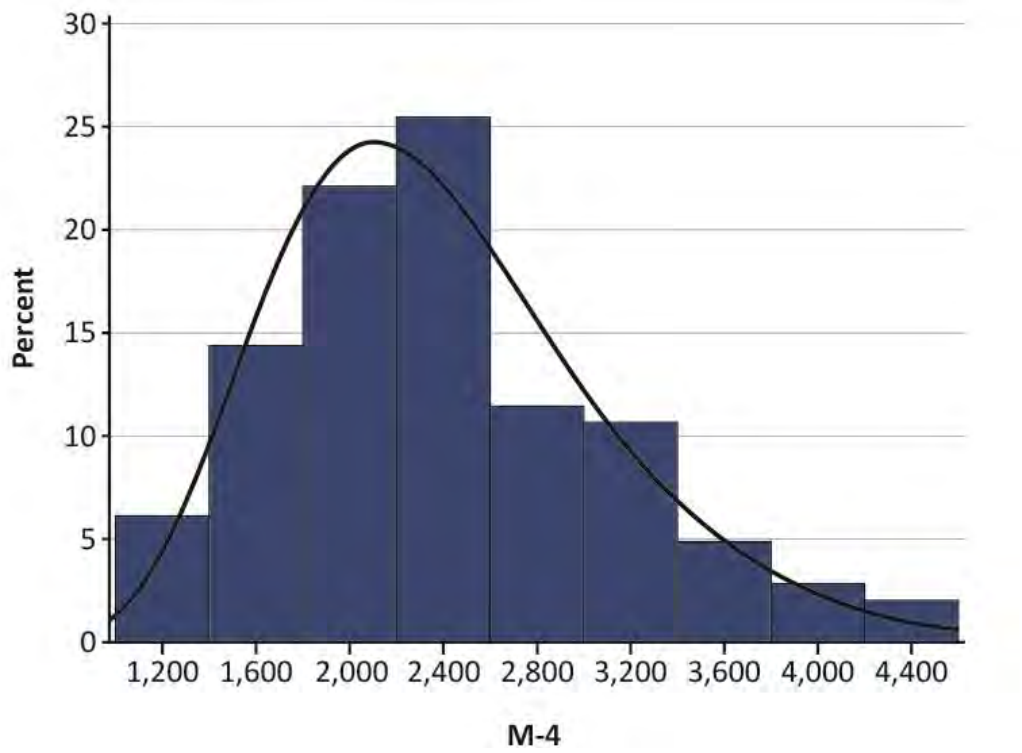



**Figure E.11: Histogram of the Eastern Interconnection Frequency Response 2013–2017**

The Kolmogorov-Smirnov, Cramer-von Mises, and Anderson-Darling Goodness-of-Fit tests showed that a lognormal distribution can be a very good approximation for the EI frequency response distribution for the five years (p-values are greater than 0.50, 0.25, and 0.50, respectively).

The parameters of this lognormal distribution are as follows: the threshold = -153.3, the scale = 7.8, and the shape = 0.28. The probability density function of the fitted distribution is shown in Figure E.11 as a curve.

### *Texas Interconnection*

Figure E.12 shows the histogram of the TI frequency response for the 2013–2017 operating years based on the 206 observations of M-4. This is a right-skewed distribution with the median of 733 MW/0.1 Hz, the mean of 782 MW/0.1 Hz, and the standard deviation of 263 MW/0.1 Hz.

AMERICAN OVERSIGHT



EXT-18-2615-C-000171

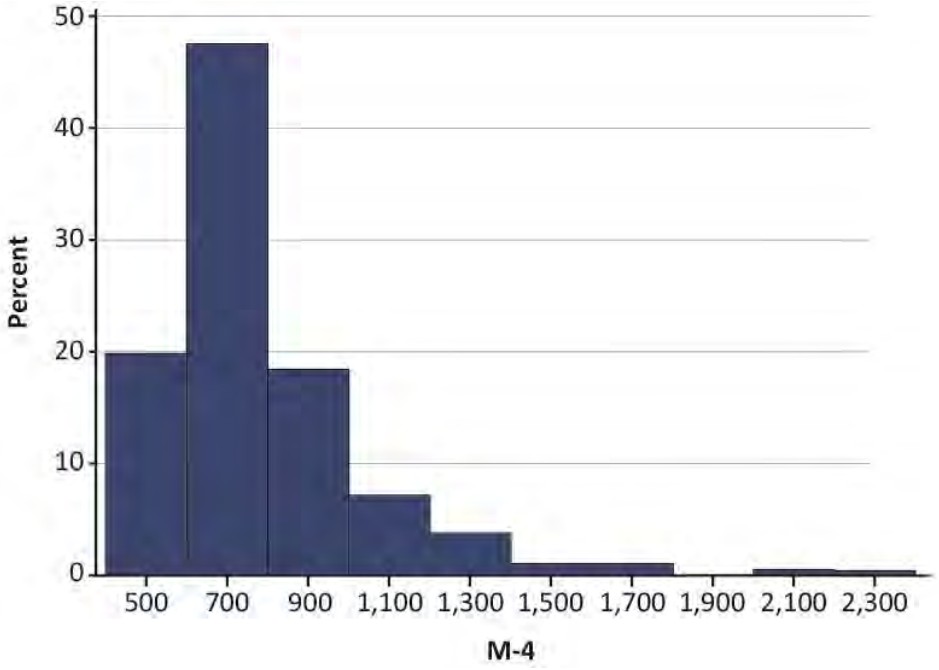



**Figure E.12: Histogram of the Texas Interconnection Frequency Response 2013–2017**

Kolmogorov-Smirnov, Cramer-von Mises, and Anderson-Darling Goodness-of-Fit tests were carried out for standard distributions, but they found no good fit for the Texas frequency response data. Additional Q-Q analysis showed that a poor fit to the closest lognormal distribution is due to the upper outliers in 2016 and 2017 seen in **Figure E.4** and **Figure E.8**.

### *Québec Interconnection*

**Figure E.13** shows the histogram of the QI frequency response for the 2013–2017 operating years based on the 217 observations of M-4. This is a right-skewed distribution with the median of 558 MW/0.1 Hz, the mean of 648 MW/0.1 Hz, and the standard deviation of 435 MW/0.1 Hz.

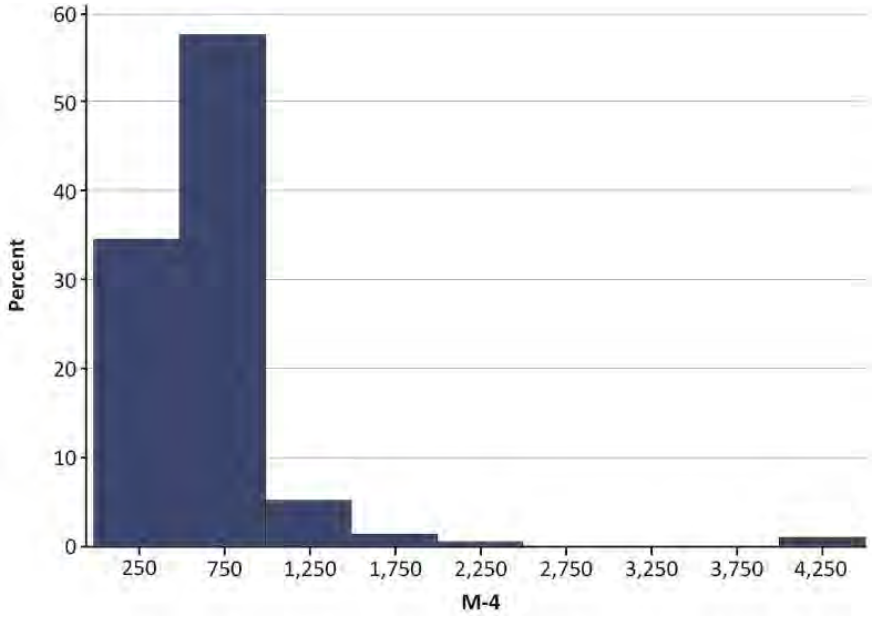



**Figure E.13: Histogram of the Québec Interconnection Frequency Response 2013–2017**

AMERICAN OVERSIGHT



EXT-18-2615-C-000172

Kolmogorov-Smirnov, Cramer-von Mises, and Anderson-Darling Goodness-of-Fit tests were carried out for standard distributions, but they found no good fit for the Québec frequency response data. Additional Q-Q analysis showed that a poor fit to the closest lognormal distribution is due to the extreme upper outliers in 2017 seen in **Figure E.5** and **Figure E.9**.

### *Western Interconnection*

**Figure E.14** shows the histogram of the WI frequency response for the 2013–2017 operating years based on the 139 observations of M-4. This is a right-skewed distribution with the median of 1400 MW/0.1 Hz, the mean of 1556 MW/0.1 Hz, and the standard deviation of 697 MW/0.1 Hz.

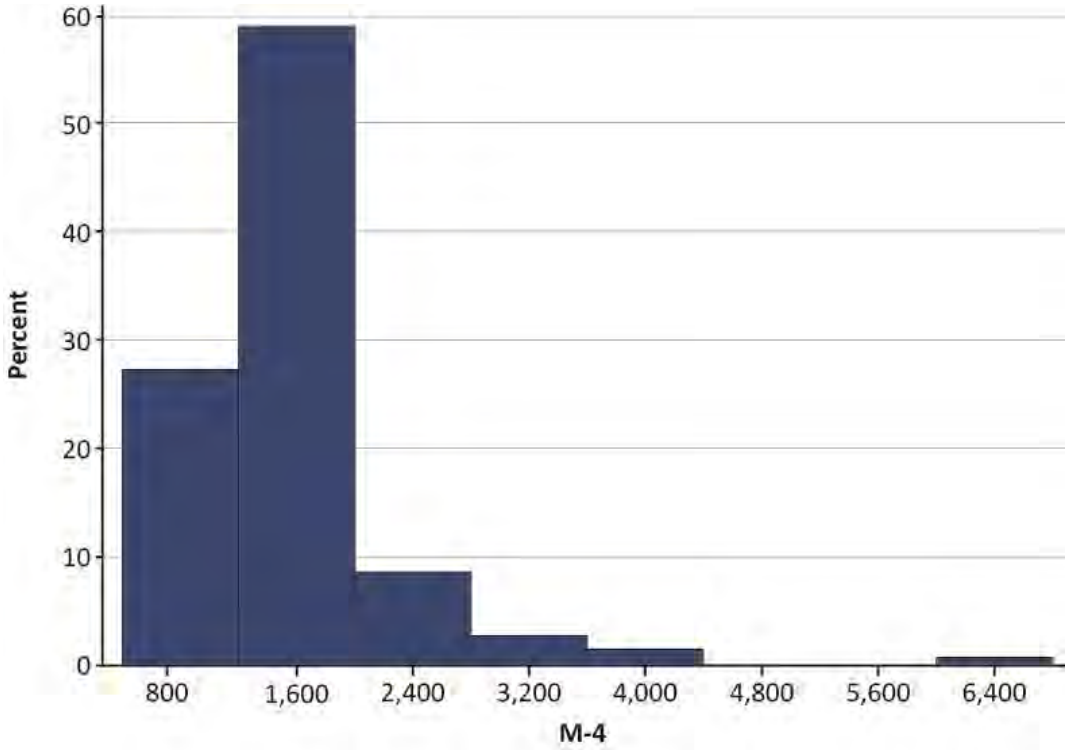



**Figure E.14: Histogram of the Western Interconnection Frequency Response 2013–2017**

Kolmogorov-Smirnov, Cramer-von Mises, and Anderson-Darling Goodness-of-Fit tests were carried out for standard distributions, but they found no good fit for the WI frequency response data. Additional Q-Q analysis showed that a poor fit to the closest lognormal distribution is due to the four upper outliers in 2016 and 2017 seen in **Figure E.6** and **Figure E.10**.

## Explanatory Variables for Frequency Response and Multiple Regression

### *Explanatory Variables*

The goal of this section is to evaluate and quantify how specific indicators could be tied to severity of frequency deviation events. In the *State of Reliability 2016,*[164] a set of explanatory variables that might affect the Interconnection frequency response included 10 variables. In 2017, the renewable generation is added by source for all Interconnections except the EI. The selected variables are neither exhaustive nor pair-wise uncorrelated, and some pairs are strongly correlated; however, all are included as candidates to avoid the loss of an important contributor to the frequency response variability. First, the frequency response and explanatory variables are tested for a significant

[164] The *State of Reliability 2016* can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2016_SOR_Report_Final_v1.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000173

correlation (positive or negative); if a significant correlation is found, numerical estimates are provided of the explanatory variable impact to the frequency response. Then a multiple (i.e., multivariate) regression model, describing the frequency response with these explanatory variables as regressors, is built for each Interconnection. Model selection methods help ensure the removal of highly correlated regressors and run multicollinearity diagnostics (variance inflation diagnostics) for a multiple regression model selected. The explanatory variables included in this study are as follows:

**Time**: A moment in time (year, month, day, hour, minute, second) when a frequency response event happened. Time is measured in seconds elapsed between midnight of January 1, 1960 (the time origin for the date format in SAS), and the time of a corresponding frequency response event. This is used to determine time trends over the study period.

**Winter (Indicator Function)**: Defined as one for frequency response events that occur from December through February, and zero otherwise.

**Spring (Indicator Function)**: Defined as one for frequency response events that occur from March through May, and zero otherwise.

**Summer (Indicator Function)**: Defined as one for frequency response events that occur from June through August, and zero otherwise.

**Fall (Indicator Function):** Defined as one for frequency response events that occur from September through November, and zero otherwise.

**On-peak Hours (Indicator Function)** Defined as one for frequency response events that occurred during on-peak hours, and zero otherwise. On-peak hours are designated as follows: Monday to Saturday from 0700–2200 (Central Prevailing Time for EI, TI, and QI; Pacific Prevailing Time for WI, excluding six holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

**Predisturbance Frequency A**: Value A as shown in **Figure E.1** (measured in Hz).

**Margin = C-UFLS**: Difference between an event nadir, Point C (as shown in **Figure E.1**) and the UFLS for a given Interconnection. Measured in Hz. The UFLS values are listed in **Table E.10**.

**Table E.10: Underfrequency Load Shed**

| Interconnection | Highest UFLS Trip Frequency |
|---|---|
| Eastern | 59.5 Hz |
| Texas | 59.3 Hz |
| Québec | 58.5 Hz |
| Western | 59.5 Hz |

**Interconnection Load Level**: Measured in megawatts.

**Interconnection Load Change by Hour**: Difference between Interconnection load at the end of the hour and at the beginning of the hour during which the frequency event occurred. Measured in megawatts.

**Renewable Generation by Type**: Texas provided the 2012–2017 hourly data for wind generation resources. Note that wind is the only significant renewable resource in Texas with the average hourly generation of about 4,600 MW in

AMERICAN OVERSIGHT

EXT-18-2615-C-000174

2015 (for comparison, solar generation is still less than 200 MW total installed capacity and hydroelectric generation is even smaller).

The QI provided the 2013–2017 hourly data for wind generation resources.

WECC provided the 2013–2016 hourly data for renewable generation output levels in the WI by generation type (Hydro, Wind, and Solar).

**Data Sets**: While the time trend analysis for M-4 is based on the most recent five years of the frequency response data, the multivariate analyses with the explanatory variables require large data sets and use the data for the 2012–2017 operating years when available. Some datasets (Interconnection load for the EI and the WI, Wind Load for Texas and the WI, Hydro and Solar resources) are not available for the six-year range for the 2012–2017 operating years. In such cases, the correlation between frequency response and this explanatory variable is calculated based on the available data. Even complete six-year data sets have insufficient sizes for a good explanatory and predictive model, which requires estimates of big number of parameters. An adequate model for each Interconnection can only come with an annual addition of the frequency response data sets.

## Summary of Correlation Analysis

The results of the correlation and a single regression analysis by Interconnection are shown in **Table E.14**, **Table E.18**, **Table E.22,** and **Table E.26** and explained in details in the respective sections below. The explanatory variables are ranked from highest Pearson's coefficient of determination to the smallest; the coefficient indicates the explanatory power of an explanatory variable for the frequency response. Summary **Table E.11** lists the ranks of statistically significant[165] variables for frequency response in each Interconnection. In **Table E.11**, the "Positive" indicates a statistically significant positive correlation, "Negative" indicates a statistically significant negative correlation, and a dash indicates no statistically significant linear relation. For example, 4 (positive) for the EI Interconnection load means that the load ranked forth by its explanatory power (measured by the Pearson's coefficient $R^2$) for the EI frequency response, and there is a statistically significant[166] positive correlation between the EI Interconnection load and frequency response (the higher load the better frequency response).

**Table E.11: Explanatory Variables: Ranking and Significance of Correlation**

| Explanatory Variable | Eastern | Texas | Québec | Western |
|---|---|---|---|---|
| Time | - | 2 (positive) | - | 2 (positive) |
| Winter | - | - | 3 (positive) | - |
| Spring | 3 (negative) | - | 5 (positive) | - |
| Summer | 5 (positive) | | 4 (negative) | - |
| Fall | - | - | 6 (negative) | - |
| Predisturbance Frequency A (Hz) | 1 (negative) | 1 (negative) | - | 1 (negative) |
| Margin=C-UFLS (Hz) | 2 (negative) | 4 (negative) | 1 (positive) | - |
| On-Peak Hours | - | - | - | 3 (positive) |
| Interconnection Load | 4 (positive) | 5 (positive) | 2 (positive) | - |

[165] At the significance level 0.1.
[166] At the significance level 0.1.


AMERICAN OVERSIGHT
EXT-18-2615-C-000175

| Table E.11: Explanatory Variables: Ranking and Significance of Correlation | | | | |
|---|---|---|---|---|
| **Explanatory Variable** | **Eastern** | **Texas** | **Québec** | **Western** |
| Interconnection Load Change by Hour | - | - | - | - |
| Wind Load | No data | 3 (positive) | - | - |
| Hydro Load | No data | No data | No data | - |
| Solar Load | No data | No data | No data | - |

A statistically significant positive correlation between time and frequency response confirms an increasing trend for the mean frequency response in the TI and WI. Predisturbance Frequency has a statistically significant negative impact to frequency response in all the Interconnections except the QI—the higher A the lower frequency response. Low frequency events with a starting frequency above 60 Hz (Value A) tend to have smaller frequency response since it is less likely that frequency will drop below the governor deadband setting. Interconnection load is significantly and positively correlated with frequency response in all Interconnections except the WI. Among Interconnections with renewable generation data available, Wind load in ERC0T positively and statistically significantly affect the respective frequency response.

Seasonal differences in frequency response are found statistically significant in the EI and the QI. It is noteworthy that spring events have on average smaller frequency response than other seasons in the EI but greater frequency response than other seasons in the QI. Summer events have on average smaller frequency response than other seasons in the QI but greater frequency response than other seasons in the EI.

Margin = C-UFLS is statistically significantly correlated with frequency response in the EI, TI, and QI; however, in the QI the correlation is positive (the higher Margin the higher frequency response) while in the EI and TI the correlation is negative.

Other observations from the comparative analysis by Interconnection are as follows:

- As expected with larger datasets, the statistical significance of the results and the explanatory power of regressors improve. However, to build good explanatory and predictive models of frequency response with multiple explanatory variables more years of data and possibly additional variables are needed.
- The majority of the events occurs during on-peak hours, ranging from 61 percent of events in the WI to 68 percent in the QI.
- In the EI, a total of 47 percent of events start with Predisturbance Frequency A>60 Hz while the other Interconnections majority of events start with A>60 Hz (55 percent in TI and the WI, and 57 percent in the QI).
- In the WI 60 percent of the frequency response events occur when the Interconnection load level increases while for the other Interconnections these comprise about half of all events.

More details on the correlation analysis and multivariate models by Interconnection are provided in the following information.

### *Eastern Interconnection: Correlation Analysis and Multivariate Model*

Descriptive statistics for the 10 explanatory variables and the EI frequency response are listed in **Table E.12** (numerical variables) and **Table E.13** (categorical variables). A statistical significance of a difference in frequency response in the

AMERICAN OVERSIGHT



EXT-18-2615-C-000176

last column of **Table E.13** (e.g., between frequency response of winter events and non-winter events) is drawn from the t-test.[167]

**Table E.12: Numerical Explanatory Variables for Eastern Interconnection**

| Variable | N | Mean | Standard Deviation | Median | Minimum | Maximum |
|---|---|---|---|---|---|---|
| Time | 254 | N/A | N/A | N/A | 12/1/2012 | 11/30/2017 |
| Predisturbance Frequency A (Hz) | 254 | 60.00 | 0.01 | 60.00 | 59.97 | 60.03 |
| Margin =C-UFLS (Hz) | 254 | 0.45 | 0.01 | 0.45 | 0.41 | 0.49 |
| Interconnection Load (MW) | 173 | 345,137 | 66,714 | 331,998 | 222,968 | 512,504 |
| Load Change by Hour (MW) | 173 | 234 | 10,577 | 547 | -33,129 | 28,611 |
| Frequency Response | 254 | 2393 | 701 | 2,291 | 1,043 | 4,536 |

**Table E.13: Categorical Explanatory Variables for Eastern Interconnection Frequency Response**

| Variable | Total Number of Frequency Response Events | Number of Events with Indicator 1 | Percent of Events with Indicator 1 | Mean Frequency Response for Events with Indicator 1 | Mean Frequency Response for Events with Indicator 0 | Is Difference in Frequency Response Between 1 and 0 Statistically Significant?[168] |
|---|---|---|---|---|---|---|
| Winter | 254 | 62 | 24% | 2,460 | 2,371 | No |
| Spring | 254 | 72 | 28% | 2,189 | 2,474 | Yes |
| Summer | 254 | 55 | 22% | 2,593 | 2,338 | Yes |
| Fall | 254 | 65 | 26% | 2,386 | 2,395 | No |
| On-Peak Hours | 254 | 164 | 65% | 2,400 | 2,381 | No |

Interconnection load and Interconnection load change by hour data are available for the 173 frequency response events that occurred from 2012–2016 calendar years. Other data are available for all 254 events.

The correlation and a single regression analysis result in the hierarchy of the explanatory variables for the EI frequency response as shown in **Table E.14**. The table lists p-values of the test on the significance of correlation between each explanatory variable and frequency response. If p-value is smaller than 0.1, the correlation is statistically significant at the 0.1 significance level. For such a variable, the value of a coefficient of determination $R^2$ in the last column indicates the percentage in variability of the frequency response data that can be explained by variability of this explanatory variable. Note that for categorical variables, p-value of the correlation between their indicator function, and frequency response is the same as p-value of the pooled test used to populate the last column of **Table E.13**.

[167] Pooled or Satterthwaite t-test at the significance level 0.1
[168] At the significance level 0.1


AMERICAN OVERSIGHT
EXT-18-2615-C-000177

| Table E.14: Correlation and Regression Analysis for Eastern Interconnection Frequency Response | | | |
|---|---|---|---|
| **Explanatory Variable** | **Correlation with Frequency Response** | **P-Value** | **$R^2$ (If Statistically Significant)[169]** |
| Predisturbance Frequency A (Hz) | -0.55 | <.0001 | 30.7% |
| Margin =C-UFLS (Hz) | -0.33 | <.0001 | 10.8% |
| Spring | -0.18 | 0.003 | 3.4% |
| Interconnection Load (MW) | 0.17 | 0.023 | 3.0% |
| Summer | 0.15 | 0.017 | 2.3% |
| Winter | 0.05 | 0.390 | N/A |
| Load Change by Hour (MW) | 0.05 | 0.488 | N/A |
| Time | -0.04 | 0.514 | N/A |
| On-Peak Hours | 0.01 | 0.841 | N/A |
| Fall | -0.01 | 0.925 | N/A |

Out of the 10 explanatory variables, five have a statistically significant correlation with the EI frequency response. Predisturbance Frequency A has the strongest correlation with and the greatest explanatory power (30.7 percent) for the frequency response. Predisturbance Frequency and Margin are negatively correlated with frequency response. Thus, events with higher A tend to have smaller expected frequency response: on average, the EI frequency response decreases by 382 MW/0.1 Hz as A increases by 10 mHz. Similarly, events with larger Margin (and therefore higher nadir C) tend to have statistically significantly smaller expected frequency response: on average, frequency response decreases by 193 MW/0.1 Hz as Margin increases by 10 mHz. Note that A and Margin are not independent variables: there is a statistically significant positive correlation of 0.70 between them (p-value of the test of the significance of correlation <0.0001).

Next, Interconnection load and frequency response are positively (and statistically significantly) correlated: events happened with higher Interconnection load tend to have better response. On average, the frequency response increases by 16 MW/0.1 Hz when Interconnection load increases by 10,000 MW.

As reflected in **Table E.13** and **Table E.14**, spring events in the EI have statistically significantly lower frequency response than other events with respective average frequency responses of 2,189 MW/0.1 Hz and 2,474 MW/0.1 Hz (shown in **Table E.13**). In contrast, summer events have statistically significantly better frequency response than other events with respective average frequency responses of 2,593 MW/0.1 Hz and 2,338 MW/0.1 Hz.

The sum of the coefficients of determination in the last column of **Table E.14** (for the explanatory variables that statistically significantly correlate with frequency response) equals 50.1 percent. However, it does not mean that together variability in these five regressors explains more than a half of variability in the EI frequency response because these variables are collinear (not mutually independent)—for example, A and Margin are highly correlated, as mentioned above. The best multivariate model for the EI frequency response described below has the explanatory power (the adjusted coefficient of determination) of 33.7 percent.

[169] At the significance level 0.1

AMERICAN OVERSIGHT



EXT-18-2615-C-000178

Multivariate model selection, performed by the step-wise selection and the forward selection algorithms, results in a multiple regression model that connects the 2012–2017 EI frequency response with Predisturbance Frequency A and Indicator of spring events (the other variables are not selected or are eliminated by the algorithms).[170] The model's coefficients are listed in **Table E.15**.

**Table E.15: Coefficients of Multiple Model for Eastern Interconnection Frequency Response**

| Variable | DF | Parameter Estimate | Standard Error | t-value | p-value | Variance Inflation Value |
|---|---|---|---|---|---|---|
| Intercept | 1 | 2,058,741 | 189,304 | 10.88 | <.0001 | 0.00 |
| Spring | 1 | -291.2 | 79.5 | -3.67 | 0.0003 | 1.00006 |
| Predisturbance Frequency A (Hz) | 1 | -34,271 | 3,155 | -10.86 | <.0001 | 1.00006 |

The adjusted coefficient of the multiple determination adj $R^2$ of the model is 33.7 percent; the model is highly statistically significant ($p<0.0001$). The random error has a zero mean and the sample deviation σ of 570 MW/0.1 Hz. Variance inflation factors for the regressors are very close to 1, which confirms an acceptable level of multicollinearity that does not affect a general applicability of the model. The parameter estimates, or the coefficients for the regressors, indicate how change in a regressor value impacts frequency response. Note that the regressors in the final model are not correlated: t-test confirms that the spring events and non-spring events have statistically similar the expected Predisturbance frequency A and the variance of A.

A summary of the Fit Diagnostics, including quantile-to-quantile and Influence diagnostics as well as residual analyses, is provided in **Figure E.15**.

[170] Regressors in the final model have p-values not exceeding 0.1.

AMERICAN OVERSIGHT



EXT-18-2615-C-000179

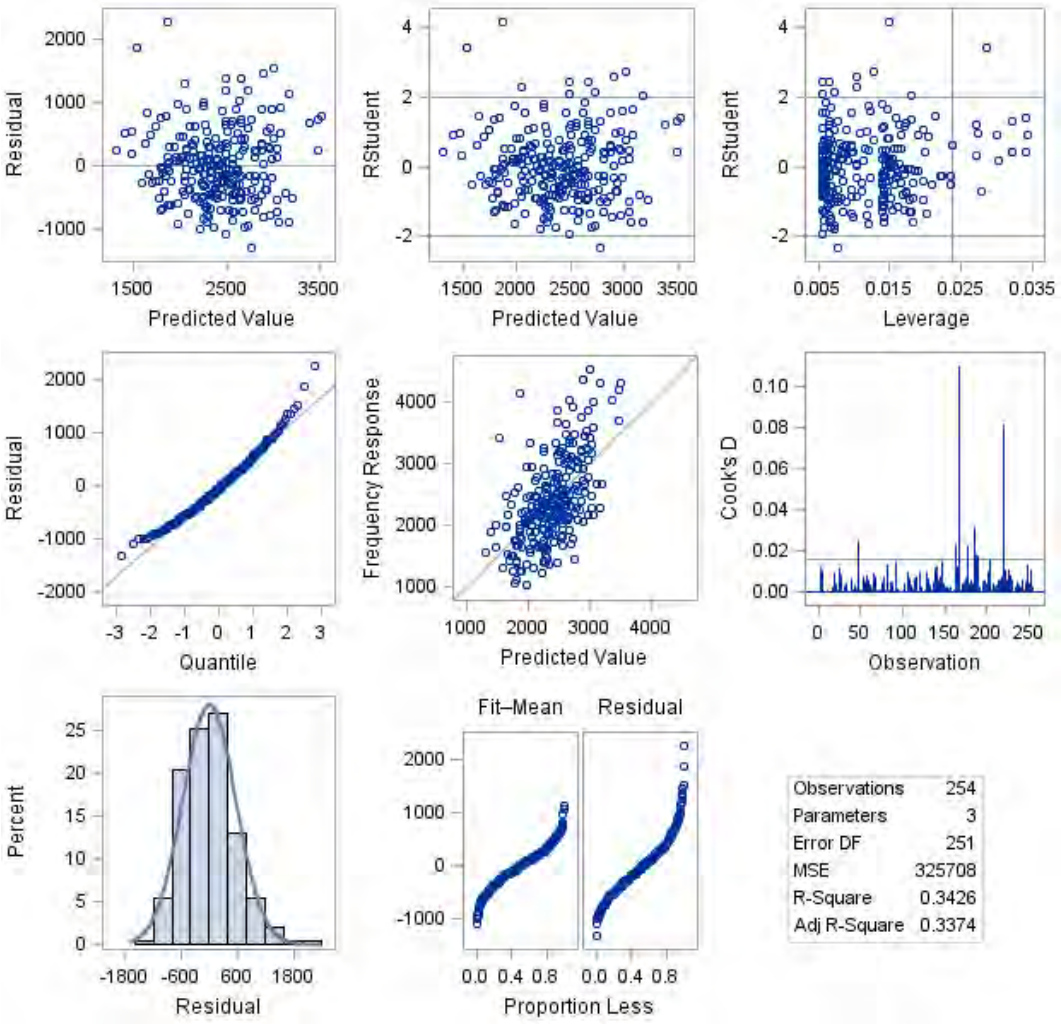



**Figure E.15: Fit Diagnostics for Multiple Model of the Eastern Interconnection Frequency Response 2012–2017**

### *Texas: Correlation Analysis and Multivariate Model*

Descriptive statistics for the 11 explanatory variables and the TI frequency response are listed in **Table E.16** (numerical variables) and **Table E.17** (categorical variables). A statistical significance of a difference in frequency response in the last column of **Table E.17** (e.g., between frequency response of winter events and non-winter events) is drawn from the t-test.[171]

**Table E.16: Numerical Explanatory Variables for Texas Interconnection**

| Variable | N | Mean | Standard Deviation | Median | Minimum | Maximum |
|---|---|---|---|---|---|---|
| Time | 252 | N/A | N/A | N/A | 12/1/2012 | 11/30/2017 |
| Predisturbance Frequency A (Hz) | 252 | 60.00 | 0.02 | 60.00 | 59.94 | 60.03 |
| Margin =C-UFLS (Hz) | 250 | 0.55 | 0.05 | 0.56 | 0.41 | 0.63 |

[171] Pooled or Satterthwaite t-test at the significance level 0.1.



AMERICAN OVERSIGHT
EXT-18-2615-C-000180

| Table E.16: Numerical Explanatory Variables for Texas Interconnection | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Standard Deviation** | **Median** | **Minimum** | **Maximum** |
| Interconnection Load (MW) | 252 | 42,661 | 10,509 | 40,430 | 23,905 | 67,209 |
| Load Change by Hour (MW) | 252 | 89 | 1,731 | 13 | -4,937 | 4,601 |
| Wind Resources | 252 | 4,354 | 3,062 | 3,491 | 81 | 15,080 |
| Frequency Response | 252 | 742 | 259 | 701 | 337 | 2,304 |

| Table E.17: Categorical Explanatory Variables for Texas Interconnection Frequency Response | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **Total Number of Frequency Response Events** | **Number of Events with Indicator 1** | **Percent of Events with Indicator 1** | **Mean Frequency Response for Events with Indicator 1** | **Mean Frequency Response for Events with Indicator 0** | **Is Difference in Frequency Response Between 1 and 0 Statistically Significant?[172]** |
| Winter | 252 | 45 | 18% | 690 | 753 | No |
| Spring | 252 | 70 | 28% | 702 | 757 | No |
| Summer | 252 | 77 | 31% | 781 | 724 | No |
| Fall | 252 | 60 | 24% | 776 | 731 | No |
| On-Peak Hours | 252 | 164 | 65% | 738 | 748 | No |

For all variables except Margin (loss of load events are excluded), the data are available for the 252 frequency response events that occurred from 2012–2017 operating years.

The correlation and a single-regression analysis result in the hierarchy of the explanatory variables for the TI frequency response are shown in **Table E.18**. The table lists p-values of the test on the significance of correlation between each explanatory variable and frequency response. If p-value is smaller than 0.1, the correlation is statistically significant at the 0.1 significance level. For such a variable, the value of a coefficient of determination $R^2$ in the last column indicates the percentage in variability of the frequency response data that can be explained by variability of this explanatory variable. Note that for categorical variables, p-value of the correlation between their indicator function and frequency response is the same as p-value of the pooled test used to populate the last column of **Table E.17**.

[172] At the significance level 0.1

AMERICAN OVERSIGHT



EXT-18-2615-C-000181

| Table E.18: Correlation and Regression Analysis for Texas Interconnection Frequency Response | | | |
|---|---|---|---|
| **Explanatory Variable** | **Correlation with Frequency Response** | **P-Value** | **$R^2$ (If Statistically Significant)[173]** |
| Predisturbance Frequency A (Hz) | -0.37 | <.0001 | 13.6% |
| Time | 0.33 | <.0001 | 10.7% |
| Wind Resources | 0.24 | 0.0001 | 5.8% |
| Margin =C-UFLS (Hz) | -0.20 | 0.002 | 3.9% |
| Interconnection Load (MW) | 0.12 | 0.05 | 1.5% |
| Summer | 0.10 | 0.107 | N/A |
| Spring | -0.10 | 0.13 | N/A |
| Winter | -0.09 | 0.14 | N/A |
| Fall | 0.07 | 0.24 | N/A |
| Load Change by Hour (MW) | -0.03 | 0.63 | N/A |
| On-Peak Hours | -0.02 | 0.76 | N/A |

Out of the 11 variables, five are statistically significantly correlated with TI's frequency response. Predisturbance Frequency A has the strongest correlation with and the greatest explanatory power (13.6 percent) for the frequency response. A and frequency response are negatively correlated (the higher A the smaller expected frequency response). On average, the frequency response decreases by 49.6 MW/0.1 Hz as A increases by 10 mHz. Similarly, events with larger Margin (and therefore higher nadir C) tend to have statistically significantly smaller frequency response; on average, frequency response decreases by 10.7 MW/0.1 Hz as Margin increases by 10 mHz. Note that A and Margin are not independent variables; there is a statistically significant positive correlation of 0.34 between them (p-value of the test of the significance of the correlation <0.0001).

Time and frequency response are positively correlated; on average, frequency response improves in time. The average rate of the frequency response increase over the 2012–2017 operating years is 3.7 MW/0.1 Hz per month.

Next, wind resources and Interconnection load both are positively correlated with frequency response; it is noteworthy that the correlation of frequency response with Wind generation is stronger than with the overall load (5.8 percent in the variability of TI frequency response in 2012–2017 can be explained by variability in its wind generation resources compared with 1.5 percent for Interconnection load). On average, a wind resources increase of 1,000 MW corresponds to a frequency response increase of 20.4 MW/0.1 Hz while an Interconnection load increase of 1,000 MW corresponds to a frequency response increase of 3.0 MW/0.1 Hz. Note that both wind generation resources and Interconnection load significantly grew over the 2012–2017 operating years.

Seasonal changes as well as On-peak hours and Load change by hour are not associated with significant changes in frequency response.

[173] At the significance level 0.1

AMERICAN OVERSIGHT



EXT-18-2615-C-000182

The step-wise selection, the forward selection and the backward elimination algorithms result in a multiple regression model that connects the TI frequency response with Time, Summer, Predisturbance Frequency A, Margin, and Wind resources (the other six variables are not selected or were eliminated as regressors).[174] The coefficients of the multiple model are listed in **Table E.19**.

**Table E.19: Coefficients of Multiple Model for Texas Interconnection Frequency Response**

| Variable | DF | Parameter Estimate | Standard Error | T-Value | p-Value | Variance Inflation Value |
|---|---|---|---|---|---|---|
| Intercept | 1 | 266,282 | 42,467 | 6.27 | <.0001 | 0.00 |
| Time | 1 | 0.00000191 | 0.00 | 7.49 | <.0001 | 1.38 |
| Summer | 1 | 75.0 | 28.4 | 2.64 | 0.0087 | 1.07 |
| Predisturbance Frequency A (Hz) | 1 | -4,468 | 709 | -6.30 | <.0001 | 1.15 |
| Margin =C-UFLS (Hz) | 1 | -1,595 | 320 | -4.99 | <.0001 | 1.39 |
| Wind Resources | 1 | 0.010 | 0.005 | 2.12 | 0.035 | 1.18 |

The model's adjusted coefficient of multiple determination adj $R^2$ is 37.4 percent (that is the model accounts for more than 37 percent of the TI frequency response variability); the model is highly statistically significant ($p < 0.0001$). The random error has a zero mean and the sample deviation $\sigma$ of 200 MW/0.1 Hz. Variance inflation factors for the regressors do not exceed four, and this confirms an acceptable level of multicollinearity that does not affect a general applicability of the model. The parameter estimates, or the coefficients for the regressors indicate, how change in a regressor value impacts frequency response.

A summary of the Fit Diagnostics, including quantile-to-quantile and Influence diagnostics as well as residual analyses, is provided in **Figure E.16**.

[174] Regressors in the final model have p-values not exceeding 0.1.



AMERICAN OVERSIGHT
EXT-18-2615-C-000183

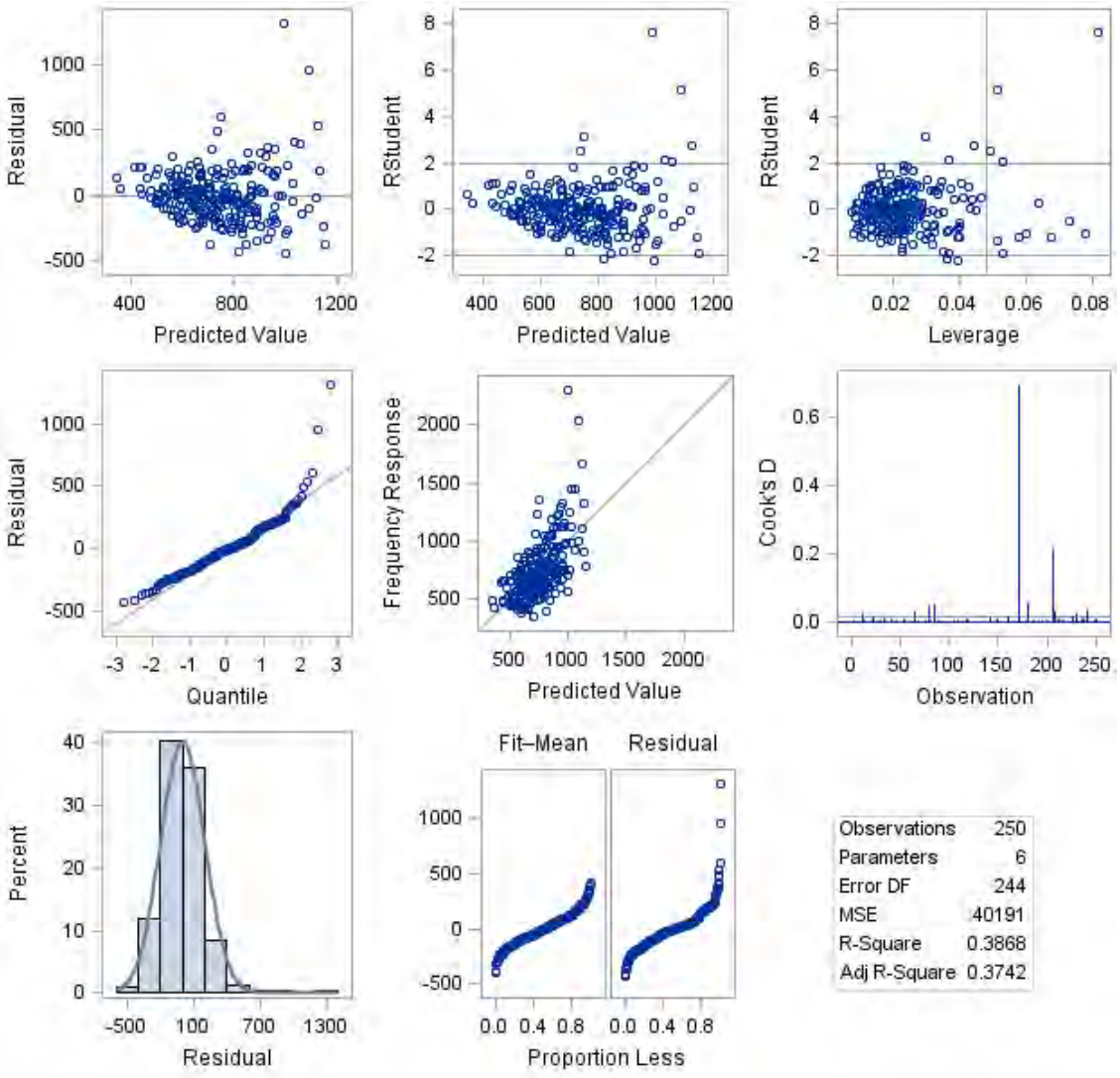



**Figure E.16: Fit Diagnostics for Multiple Model of the Texas Interconnection Frequency Response 2012–2017**

### *Québec: Correlation Analysis and Multivariate Model*

Descriptive statistics for the 11 explanatory variables and the QI frequency response are listed in **Table E.20** (numerical variables) and **Table E.21** (categorical variables). A statistical significance of a difference in frequency response in the last column of **Table E.21** (e.g., between frequency response of winter events and non-winter events) is drawn from the t-test.[175]

**Table E.20: Numerical Explanatory Variables for Québec Interconnection Frequency Response**

| Variable | N | Mean | Standard Deviation | Median | Minimum | Maximum |
|---|---|---|---|---|---|---|
| Time | 242 | N/A | N/A | N/A | 1/13/2012 | 11/8/2017 |
| Predisturbance Frequency A (Hz) | 242 | 60.00 | 0.02 | 60.00 | 59.93 | 60.06 |

[175] Pooled or Satterthwaite t-test at the significance level 0.1.



AMERICAN OVERSIGHT
EXT-18-2615-C-000184

| Table E.20: Numerical Explanatory Variables for Québec Interconnection Frequency Response | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Standard Deviation** | **Median** | **Minimum** | **Maximum** |
| Margin =C-UFLS (Hz) | 161 | 0.98 | 0.19 | 1.03 | 0.29 | 1.25 |
| Interconnection Load (MW) | 242 | 20,484 | 4,259 | 19,055 | 13,520 | 35,000 |
| Load Change by Hour (MW) | 242 | -27 | 708 | -40 | -2010 | 2,450 |
| Wind Resources | 215 | 962 | 708 | 857 | 8 | 3,013 |
| Frequency Response | 242 | 653 | 423 | 562 | 221 | 4,355 |

| Table E.21: Categorical Explanatory Variables for Québec Interconnection Frequency Response | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **Total Number of Frequency Response Events** | **Number of Events with Indicator 1** | **Percent of Events with Indicator 1** | **Mean Frequency Response for Events with Indicator 1** | **Mean Frequency Response for Events with Indicator 0** | **Is Difference in Frequency Response Between 1 and 0 Statistically Significant?[176]** |
| Winter | 242 | 30 | 12% | 880 | 620 | Yes |
| Spring | 242 | 57 | 24% | 771 | 616 | Yes |
| Summer | 242 | 95 | 39% | 568 | 707 | Yes |
| Fall | 242 | 60 | 25% | 560 | 683 | Yes |
| On-Peak Hours | 242 | 165 | 68% | 640 | 681 | No |

The Wind generation hourly data are available for the 215 frequency response events that occurred from 2013–2017. Margin data are available for 161 events (loss of load events are excluded). Other data are available for all 242 events.

The correlation and a single-regression analysis result in the hierarchy of the explanatory variables for the QI frequency response are shown in **Table E.22.** The table lists p-values of the test on the significance of correlation between each explanatory variable and frequency response. If p-value is smaller than 0.1, the correlation is statistically significant at the 0.1 significance level. For such a variable, the value of a coefficient of determination $R^2$ in the last column indicates the percentage in variability of the frequency response data that can be explained by variability of this explanatory variable. Note that for categorical variables, p-value of the correlation between their indicator function and frequency response is the same as p-value of the pooled test used to populate the last column of **Table E.21**.

[176] At the significance level 0.1

AMERICAN OVERSIGHT



EXT-18-2615-C-000185

| Table E.22: Correlation and Regression Analysis for Québec Interconnection | | | |
|---|---|---|---|
| **Explanatory Variable** | **Correlation with Frequency Response** | **P-Value** | **$R^2$ (If Statistically Significant)** |
| Margin =C-UFLS (Hz) | 0.32 | <.0001 | 10.2% |
| Interconnection Load (MW) | 0.26 | <.0001 | 6.6% |
| Winter | 0.20 | 0.002 | 4.1% |
| Summer | -0.16 | 0.01 | 2.6% |
| Spring | 0.16 | 0.02 | 2.4% |
| Fall | -0.13 | 0.05 | 1.6% |
| Wind Resources | 0.10 | 0.16 | N/A |
| On-Peak Hours | -0.05 | 0.48 | N/A |
| Time | 0.04 | 0.49 | N/A |
| Predisturbance Frequency A (Hz) | -0.04 | 0.51 | N/A |
| Load Change by Hour (MW) | 0.02 | 0.81 | N/A |

Six explanatory variables are statistically significantly correlated with frequency response. Margin has the strongest correlation and the greatest explanatory power (10.2 percent) for the frequency response. The margin is positively correlated with frequency response: on average, a margin increase of 10 mHz corresponds to a frequency response increase of 4.5 MW/0.1 Hz. Interconnection load level and frequency response are also positively correlated (i.e., the higher Interconnection load is during a frequency response event, the higher expected frequency response value of this event). On average, a load increase of 1,000 MW corresponds to a frequency response increase of 25.5 MW/0.1 Hz.

All four seasons are statistically significantly correlated with frequency response. A comparison of frequency response by season is summarized in **Table E.21**. It is noteworthy that the QI winter events have the best expected frequency response mainly due to the fact that winter is the peak usage season in the QI. More generator units are on-line; therefore, there is more inertia in the system, so it is more robust in responding to frequency changes in the winter (the highly significant positive correlation between variables winter and Interconnection load also confirms this). Another observation is that only 12 percent of the QI events have occurred in winter.

The remaining four variables do not have a statistically significant[177] linear relationship with frequency response.

The backward elimination algorithm results in a multiple regression model that connects the QI frequency response with Winter, Spring, Predisturbance Frequency, and Margin (the other variables are not selected or were eliminated).[178] The coefficients of the multiple model are listed in **Table E.23**. Note that the model is based on 161 observations with defined Margin. Because of the highly significant correlation between frequency response and Margin, exclusion of Margin from the list of candidate regressors does not lead to a better multiple model.

[177] At the significance level 0.1

[178] Regressors in the final model have p-values not exceeding 0.1.



AMERICAN OVERSIGHT
EXT-18-2615-C-000186

| Table E.23: Coefficients of Multiple Model for Québec Interconnection Frequency Response | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **DF** | **Parameter Estimate** | **Standard Error** | **T-Value** | **P-Value** | **Variance Inflation Value** |
| Intercept | 1 | 234,613 | 64,215 | 3.65 | 0.000 | 0 |
| Winter | 1 | 107 | 64 | 1.69 | 0.094 | 1.059 |
| Spring | 1 | 99 | 58 | 1.71 | 0.090 | 1.055 |
| Predisturbance Frequency A (Hz) | 1 | -3,908 | 1,070 | -3.65 | 0.000 | 1.003 |
| Margin =C-UFLS (Hz) | 1 | 444 | 115 | 3.85 | 0.000 | 1.054 |

The model's adjusted coefficient of multiple determination adj $R^2$ is 19.5 percent (19.5 percent of the QI frequency response variability can be explained by the combined variability of these four parameters); the model is highly statistically significant ($p<0.0001$). The random error has a zero mean and a sample deviation σ of 239 MW/0.1 Hz. Variance inflation factors for the regressors do not exceed 1.06, which confirms an acceptable level of multicollinearity that does not affect a general applicability of the model. The parameter estimates, or the coefficients for the regressors indicate, how change in a regressor value impacts frequency response. Note that Interconnection load would not bring new information about frequency response due to a high correlation Load with Winter; therefore, this variable becomes redundant and eliminated from the model. On the other hand, Predisturbance Frequency and Margin (and, thus, A and nadir C) are not significantly correlated and both stay in the final model.

A summary of the Fit Diagnostics, including quantile-to-quantile and Influence diagnostics as well as residual analyses, is provided in **Figure E.17**.

AMERICAN OVERSIGHT



EXT-18-2615-C-000187

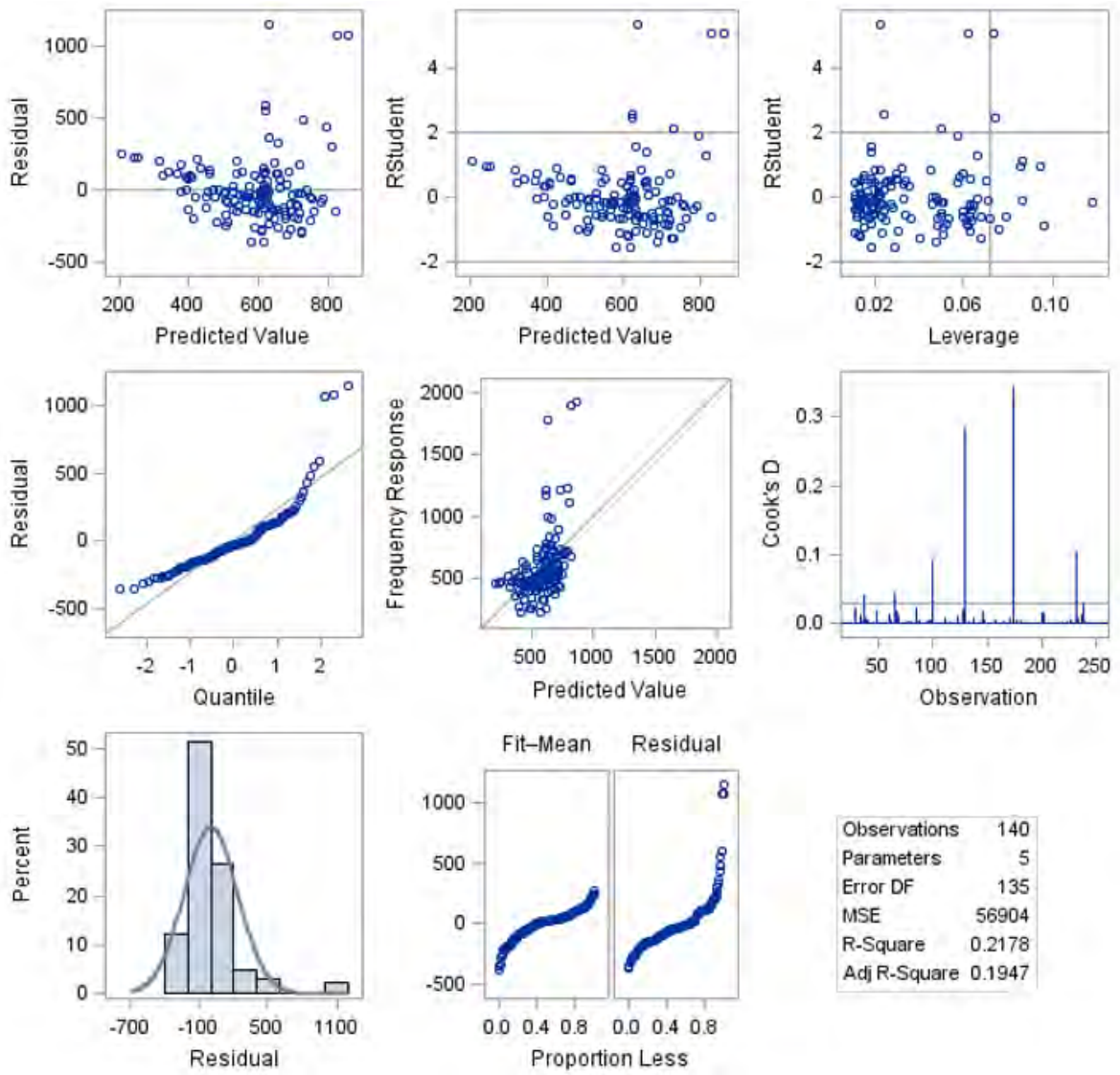



**Figure E.17: Fit Diagnostics for Multiple Model of the Québec Interconnection Frequency Response 2012–2017**

### *Western Interconnection: Correlation Analysis and Multivariate Model*

Descriptive statistics for the 13 explanatory variables and the WI frequency response are listed in **Table E.24** (numerical variables) and **Table E.25** (categorical variables). A statistical significance of a difference in frequency response shown in the last column of **Table E.25** (e.g., between frequency response of winter events and non-winter events) is drawn from the t-test.[179]

**Table E.24: Numerical Explanatory Variables for Western Interconnection Frequency Response**

| Variable | N | Mean | Standard Deviation | Median | Minimum | Maximum |
|---|---|---|---|---|---|---|
| Time | 144 | N/A | N/A | N/A | 12/1/2012 | 11/30/2017 |
| Predisturbance Frequency A (Hz) | 144 | 60.00 | 0.02 | 60.00 | 59.96 | 60.05 |

[179] Pooled or Satterthwaite t-test at the significance level 0.1.



AMERICAN OVERSIGHT
EXT-18-2615-C-000188

| Table E.24: Numerical Explanatory Variables for Western Interconnection Frequency Response | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **N** | **Mean** | **Standard Deviation** | **Median** | **Minimum** | **Maximum** |
| Margin =C-UFLS (Hz) | 141 | 0.40 | 0.05 | 0.41 | 0.17 | 0.46 |
| Interconnection Load (MW) | 103 | 95,983 | 18,184 | 91,931 | 65,733 | 151,920 |
| Load Change by Hour (MW) | 103 | 620 | 3,650 | 827 | -10,081 | 6,404 |
| Wind Resources | 98 | 5,213 | 2,700 | 4,548 | 918 | 11,700 |
| Hydro Resources | 98 | 27,164 | 6,357 | 26,612 | 15,068 | 43,105 |
| Solar Resources | 98 | 18,440 | 32,746 | 2,001 | 0 | 106,616 |
| Frequency Response | 144 | 1,551 | 687 | 1,390 | 822 | 6,645 |

| Table E.25: Categorical Explanatory Variables for Western Interconnection Frequency Response | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **Total Number of Frequency Response Events** | **Number of Events with Indicator 1** | **Percent of Events with Indicator 1** | **Mean Frequency Response for Events with Indicator 1** | **Mean Frequency Response for Events with Indicator 0** | **Is Difference in Frequency Response Between 1 and 0 Statistically Significant?** |
| Winter | 144 | 24 | 17% | 1,560 | 1,549 | No |
| Spring | 144 | 44 | 31% | 1,516 | 1,566 | No |
| Summer | 144 | 42 | 29% | 1,520 | 1,563 | No |
| Fall | 144 | 34 | 24% | 1,627 | 1,527 | No |
| On-Peak Hours | 144 | 88 | 61% | 1,632 | 1,423 | Yes |

Interconnection load and Interconnection load change by hour data are available for the 103 frequency response events that occurred during the 2012–2016 years. Renewable generation (Wind, Hydro, and Solar Load) is available by source for the 2013–2018 events. Margin data are available for 141 events (loss of load events are excluded). Other data are available for all 144 events.

The correlation and a single-regression analysis result in the hierarchy of the explanatory variables for the WI frequency response shown in **Table E.26**. The table lists p-values of the test on the significance of correlation between each explanatory variable and frequency response. If the p-value is smaller than 0.1, the correlation is statistically significant at the 0.1 significance level. For such a variable, the value of a coefficient of determination $R^2$ in the last column indicates the percentage in variability of the frequency response data that can be explained by variability of this explanatory variable. Note that for categorical variables, p-value of the correlation between their indicator function and frequency response is the same as p-value of the pooled test used to populate the last column of **Table E.25**.

AMERICAN OVERSIGHT



EXT-18-2615-C-000189

| Table E.26: Correlation and Regression Analysis for Western Interconnection for Frequency Response | | | |
|---|---|---|---|
| **Explanatory Variable** | **Correlation with Frequency Response** | **P-Value** | **$R^2$ (If Statistically Significant)[180]** |
| Predisturbance Frequency A (Hz) | -0.37 | <.0001 | 13.8% |
| Time | 0.24 | 0.004 | 5.8% |
| On-Peak Hours | 0.15 | 0.07 | 2.2% |
| Margin =C-UFLS (Hz) | -0.11 | 0.19 | N/A |
| Interconnection Load (MW) | 0.11 | 0.28 | N/A |
| Solar Resources | 0.10 | 0.32 | N/A |
| Wind Resources | -0.07 | 0.50 | N/A |
| Fall | 0.06 | 0.46 | N/A |
| Load Change by Hour (MW) | 0.06 | 0.54 | N/A |
| Hydro Resources | 0.05 | 0.60 | N/A |
| Spring | -0.03 | 0.69 | N/A |
| Summer | -0.03 | 0.73 | N/A |
| Winter | 0.01 | 0.94 | N/A |

Only three explanatory variables are statistically significantly correlated with frequency response. Predisturbance Frequency A has the strongest correlation with and the greatest explanatory power (13.8 percent) for the frequency response. Predisturbance Frequency A and frequency response are statistically significantly and negatively correlated; on average, frequency response decreases by 14.8 MW/0.1 Hz as A increases by 10 mHz. Time and frequency response are positively correlated; on average, frequency response improves in time. The average rate of the frequency response increase over the 2012–2017 operating years is 9.4 MW/0.1 Hz per month. On-Peak hour events have a statistically better frequency response as shown in **Table E.25**. The remaining 10 variables do not have a statistically significant[181] linear relationship with frequency response.

Even though six explanatory variables have smaller data size than the others, their exclusion from a multiple regression model do not improve the model (neither by increasing its explanatory power nor by reducing the error). Using all 13 variables as input regressors, the step-wise selection algorithm and the forward selection algorithm result in a multiple regression model that connects the WI frequency response with Interconnection load and Time, Spring, Predisturbance frequency, Margin, and Hydro resources (the other variables are not selected or were eliminated).[182] The coefficients of the multiple model are listed in **Table E.27**. Note that the model is based only on 98 observations with Hydro resources available.

[180] At the significance level 0.1
[181] At the significance level 0.1
[182] Regressors in the final model have p-values not exceeding 0.1.

AMERICAN OVERSIGHT

EXT-18-2615-C-000190

| Table E.27: Coefficients of Multiple Model for Western Interconnection Frequency Response | | | | | | |
|---|---|---|---|---|---|---|
| **Variable** | **DF** | **Parameter Estimate** | **Standard Error** | **T-Value** | **P-Value** | **Variance Inflation Value** |
| Intercept | 1 | 1,028,986 | 195,694 | 5.26 | <.0001 | 0.00 |
| Time | 1 | 0.0000051 | 0.0000016 | 3.22 | 0.002 | 1.62 |
| Spring | 1 | 198 | 101 | 1.97 | 0.052 | 1.06 |
| Predisturbance Frequency A (Hz) | 1 | -17,302 | 3,275 | -5.28 | <.0001 | 1.42 |
| Margin =C-UFLS (Hz) | 1 | 3,111 | 1,485 | 2.09 | 0.039 | 1.52 |
| Hydro Resources | 1 | 0.0157 | 0.0085 | 1.85 | 0.067 | 1.45 |

The adjusted coefficient of the determination adj $R^2$ of the model is 24.5 percent; the model is highly statistically significant ($p<0.0001$). The random error has a zero mean and the sample deviation σ of 440.9 MW/0.1 Hz. Variance inflation factors for the regressors do not exceed two, which confirms an acceptable level of multicollinearity that does not greatly affect a general applicability of the model even though Hydro resources and Spring are significantly (positively) correlated and so are A and Margin. The parameter estimates, or the coefficients for the regressors, indicate, how change in a regressor value impacts frequency response.

A summary of the Fit Diagnostics, including quantile-to-quantile and Influence diagnostics as well as residual analyses, is provided in **Figure E.18**.

AMERICAN OVERSIGHT



EXT-18-2615-C-000191

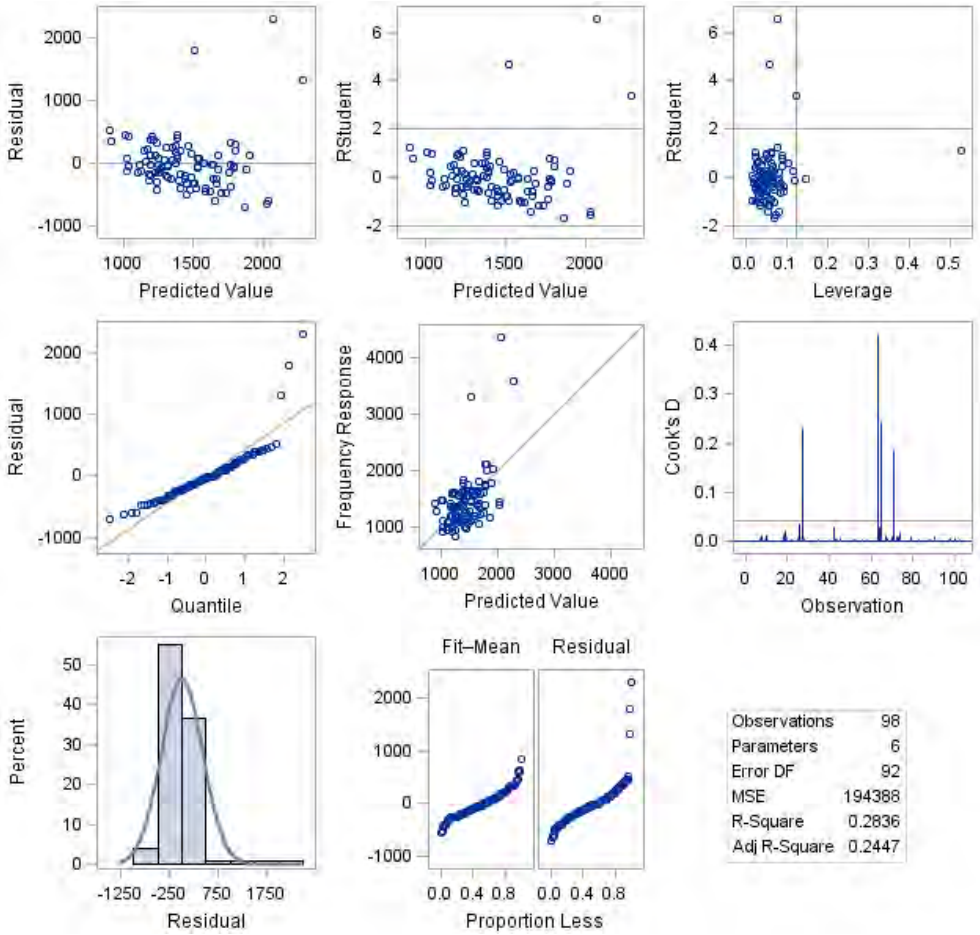



**Figure E.18: Fit Diagnostics for Multiple Model of the Western Interconnection Frequency Response 2012–2017**

# Essential Reliability Services

## Summary

Frequency support is the response of generators and loads to maintain the system frequency in the event of a system disturbance. Frequency support is provided through the combined interactions of synchronous inertia (traditionally from generators, such as natural gas, coal, hydro, and nuclear plants as well as from synchronous motors at customer locations) frequency response provided by inverters from wind farms, solar fields, and other varieties of generators and loads. Working in a coordinated way, these facilities arrest and eventually stabilize frequency. A critical issue is to stabilize the frequency before it falls below the UFLS settings or rises above the overfrequency relay trip settings on generators.

Inertia and frequency response are properties of the Interconnection, and each Interconnection has different characteristics. For example, if changes to the resource mix alter the relative amounts of synchronous inertial response or frequency response, various mitigation actions are possible. Obtaining faster primary frequency response from other generators or loads, or maintaining and improving overall frequency support can mitigate these changes.

The NERC RS monitors and identifies trends in frequency response performance as the generation mix continues to change. Measure 4 is the comprehensive frequency measure that complements metric M-4 previously discussed; it evaluates primary frequency control performance after actual disturbance events in each Interconnection tracking the initial frequency rate of change, the arresting period, and the rebound and stabilizing periods. Measures 1 and 2 evaluate components of this coordinated frequency response with Measure 1 tracking the amount of synchronous

AMERICAN OVERSIGHT

EXT-18-2615-C-000192

inertial response, abbreviated as SIR, and Measure 2 tracking the initial rate of change in frequency, abbreviated as RoCoF.

## Measure 1: Synchronous Inertial Response

For the historical trending of the SIR, a process was established for conducting synchronous inertia calculations for each Interconnection. Calculated system inertia at any point in time depends on characteristics of online and synchronized generators that includes the units' inertial constant H, and MVA rating. The calculation procedure is to determine $H_i * MVA_i$ for each online generator *i*.

Kinetic Energy or Synchronous Inertial Response (SIR) = $\sum H_i * MVA_i$

**Figure E.19** through **Figure E.22** show the monthly maximum and minimum values of SIR for each respective Interconnection.

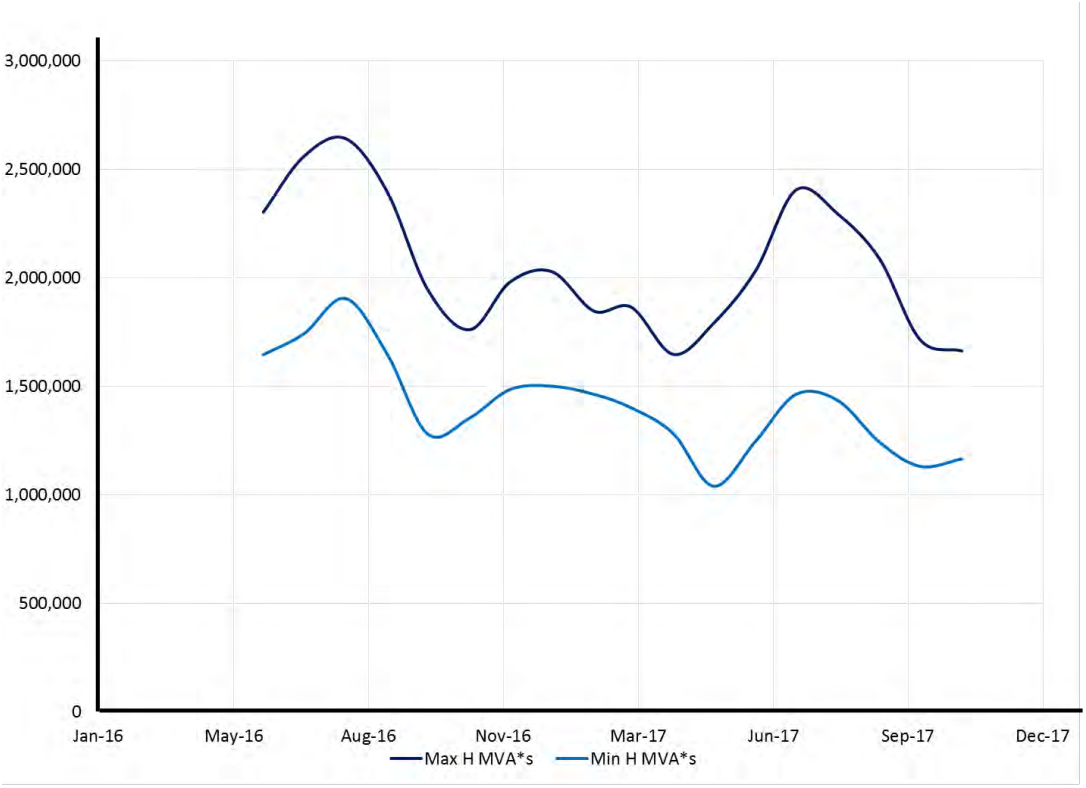



**Figure E.19: Eastern Interconnection Max and Min SIR in MVA*sec vs. Month**

AMERICAN OVERSIGHT



EXT-18-2615-C-000193

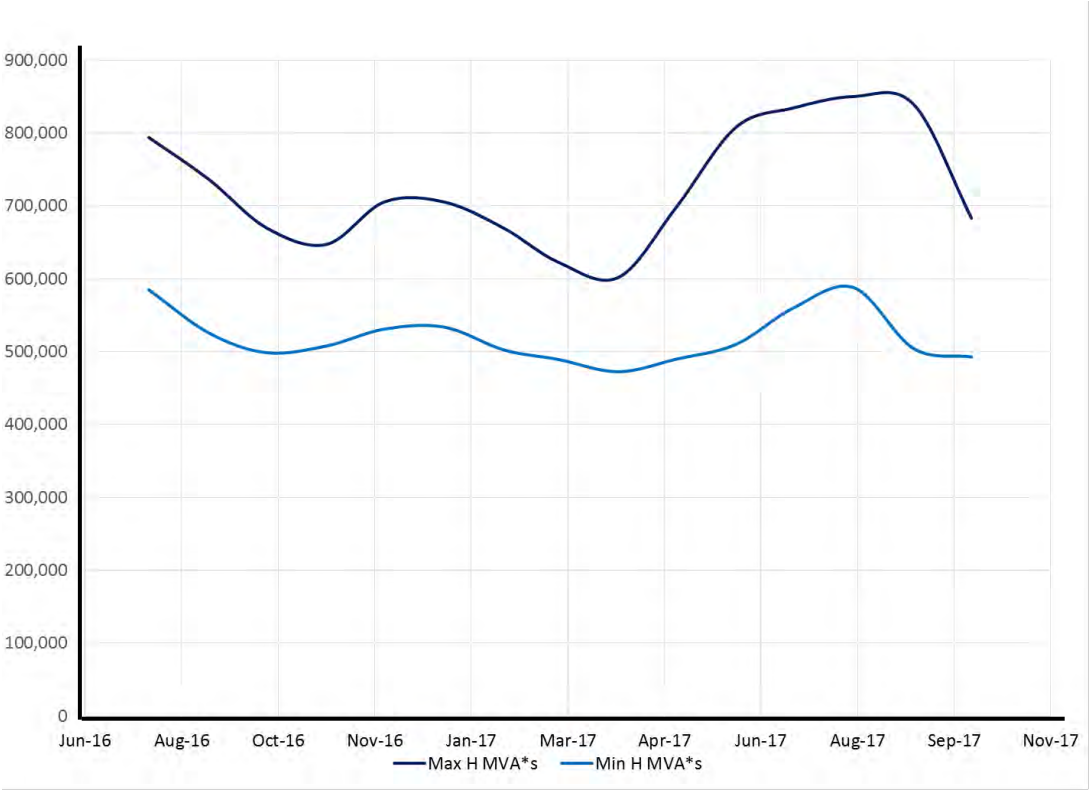



**Figure E.20: Western Interconnection Max and Min SIR in MVA*sec vs. Month**

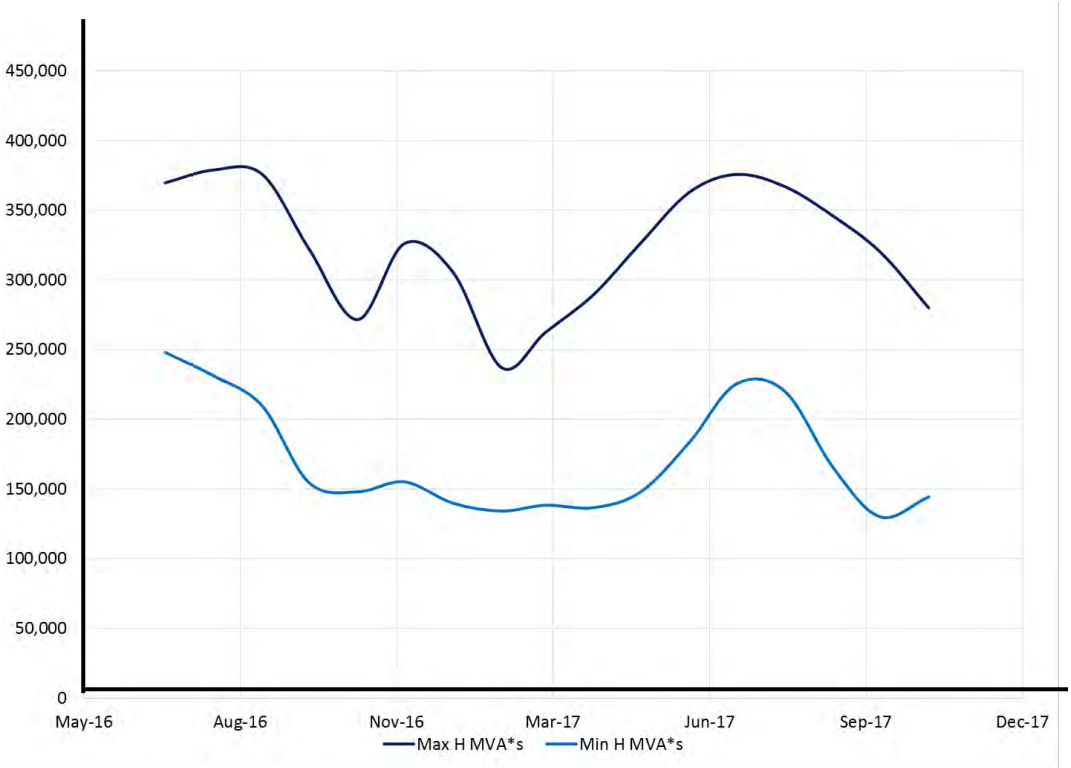



**Figure E.21: Texas Interconnection Max and Min SIR in MVA*sec vs. Month**

AMERICAN OVERSIGHT



EXT-18-2615-C-000194

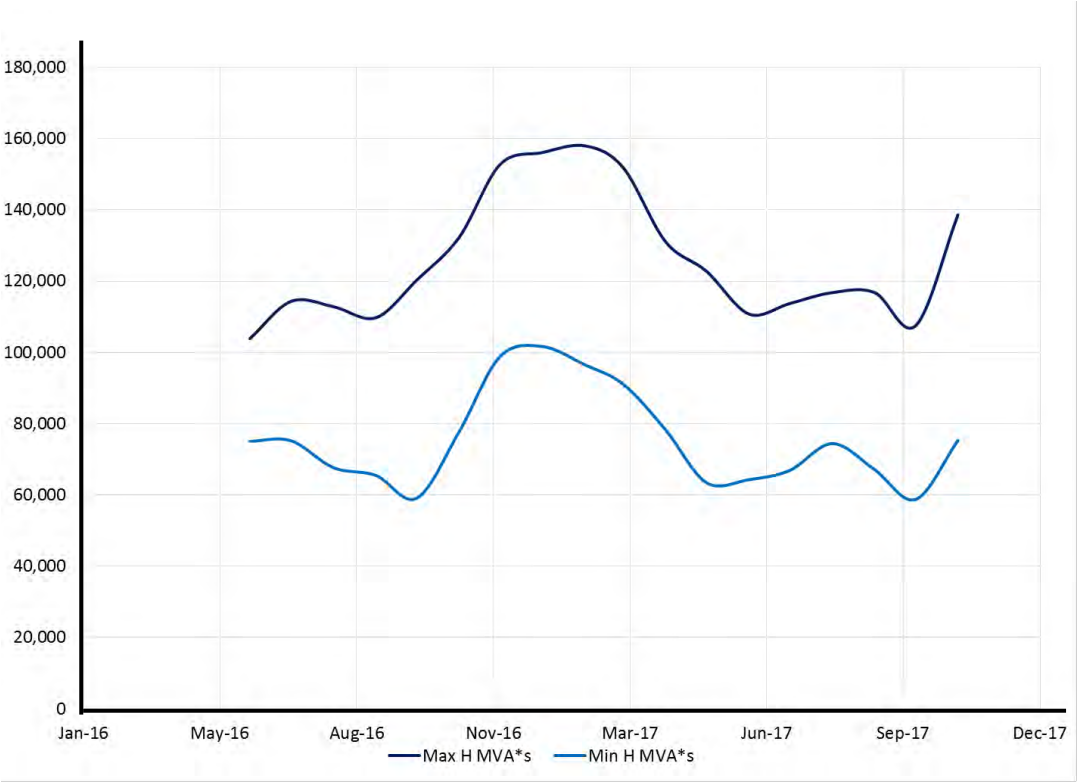



**Figure E.22: Québec Interconnection Max and Min SIR in MVA*sec vs. Month**

## Measure 2: Initial Rate of Change of Frequency after the Largest Contingency

The initial Rate of Change of Frequency (RoCoF) after a large generator trip event is measured in Hz/s. This is an indirect measure of Interconnection inertia at the time of the event. In Measure 2 RoCoF is calculated for each Interconnection from the lowest SIR value in each year and the megawatt (MW) size of the largest contingency event for the Interconnection. RoCoF is only the initial rate of change; the rate of change over the entire frequency event (and also over other portions of the frequency event) differs widely compared to the initial RoCoF. The Resource Contingency Criteria (RCC) as defined in the BAL-003 Standard is used as the largest contingency event.

For systems where load damping constant D is not available RoCoF is calculated in mHz/sec:

$$RoCoF = \frac{60 * 1000 * \Delta P_{MW}}{2 * (KE_{min} - KE_{RCC})}$$

Where $\Delta P_{MW}$ is the largest contingency as defined by the Resource Contingency Criteria (RCC) in BAL-003, and $KE_{min}$ is the minimum kinetic energy or synchronous inertial response for each historic year and $KE_{RCC}$ is the Kinetic Energy of the Resource Contingency Criteria.

For systems where load damping constant D is available, the following is used to calculate frequency deviation in mHz at 0.5 seconds:

$$\Delta f_{0.5} = \frac{60 * 1000 * \Delta P_{MW}}{D * P_{load}} (1 - e^{\frac{-0.5 * D * P_{load}}{2 * (KE_{min} - KE_{RCC})}})$$

AMERICAN OVERSIGHT



EXT-18-2615-C-000195

Where Pload is system load during $SIR_{min}$ conditions. The corresonding 0.5 sec RoCoF is calculated in mHz/sec as

$$RoCoF = \frac{\Delta f_{0.5}}{0.5}$$

The calculations are shown for OY2017 for each Interconnection in **Table E.28**.

**Table E.28: OY2017 RoCoF Statistics**

| Interconnection | Min H (MVA*sec) | Pload (MW) | f dev 0.5 sec (Hz) D=1.5 | 0.5 sec RoCoF for D=0 (mHz/s) | 0.5 sec RoCoF for D=1.5 (mHz/s) | RCC (MW) |
|---|---|---|---|---|---|---|
| **EI** | 1,038,756 | 215,222 | 0.0625 | 130 | 125 | 4,500 |
| **WI** | 472,507 | 87,712 | 0.0805 | 167 | 161 | 2,626 |
| **TI** | 130,014 | 28,444 | 0.3046 | 632 | 609 | 2,750 |
| **QI** | 58,760 | 14,260 | 0.4148 | 868 | 830 | 1,700 |

## Measure 4 Frequency Performance after Large Contingency

Measure 4 is a comprehensive measure that tracks system frequency performance in the arresting, rebound, and stabilization periods following large contingency events that have occurred in each Interconnection. On a quarterly basis, the NERC RS selects the events and calculates a number of submeasures that comprise Measure 4. Multiple years of these values are monitored to identify trends that could be due to changes in the generation mix or other factors. The submeasures for all four Interconnections are presented on the same plots for convenience, not for comparison. When sufficient years of data become available for each Interconnection, each Interconnection will be trended only against its own historic performance.

### *A to C Frequency Response*

A to C frequency response captures the impacts of inertial response, load response (load damping), and initial governor response (governor response is triggered immediately after frequency exceeds a pre-set deadband). However, depending on the generator technology full governor response may require up to 30 seconds to be fully deployed. This Measure is calculated as the ratio of the net megawatts lost to the difference between Point A and Point C frequency values.

Below is the equation for calculating $IFRM_{A-C}$.

$$IFRM_{A-C} = \frac{MW\ Loss}{10 * \Delta f_{A-C}}$$

Where:
MW Loss = Resource or Load Output immediately prior to the start of the event
$f_{A-C}$ = Change in frequency from Value A to Value C

**Figure E.23** provides box-plots of $IFRM_{A-C}$ for operating years 2016 and 2017.

AMERICAN OVERSIGHT



EXT-18-2615-C-000196

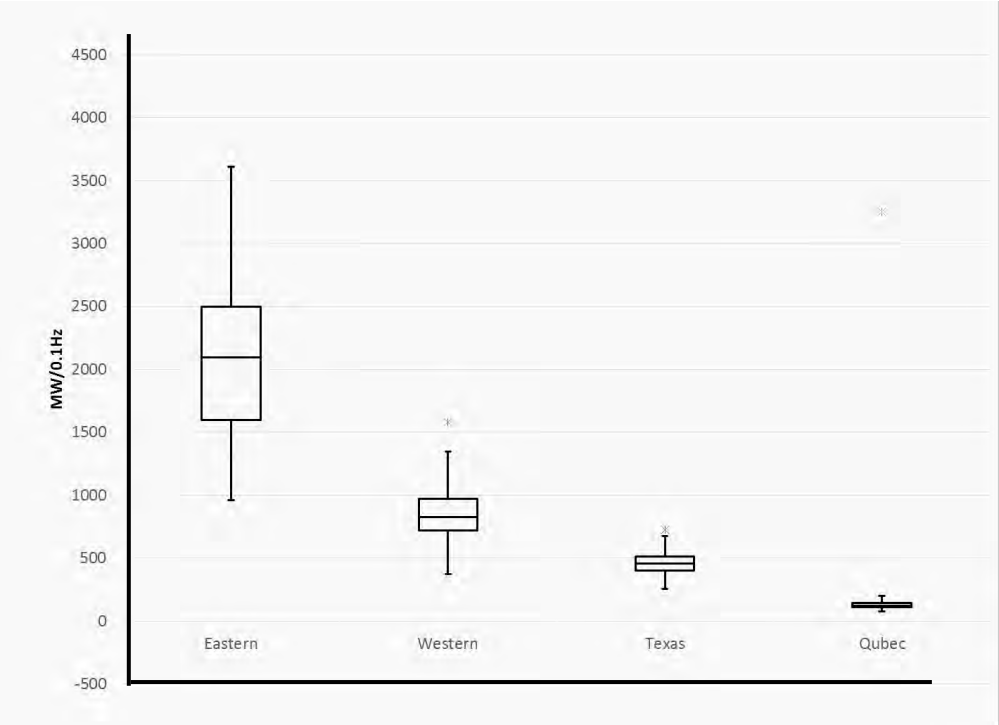



**Figure E.23: IFRM A-C for OY 2016 and 2017**

### *Cn Frequency*

$C_n$ is defined as the lowest frequency in the first 180 seconds following the beginning of the event. In the event that the low frequency nadir occurs within the Point C time interval of $T_0$ to $T_{+12}$, as is often the case in the TI, QI, and WI, Point C will equal $C_n$.

This measure previously used the Point C' value, which only exists if a frequency lower than Point C occurred beyond 52 seconds. Cn was adopted to insure that the low frequency nadir is captured even if it occurs prior to 52 seconds.

### *Time Cn to T0*

Time Cn to T0 is the time in seconds that it takes to reach the lowest frequency in the first 180 seconds. **Figure E.24** provides scatter plots of these values for each Interconnection.

AMERICAN OVERSIGHT



EXT-18-2615-C-000197

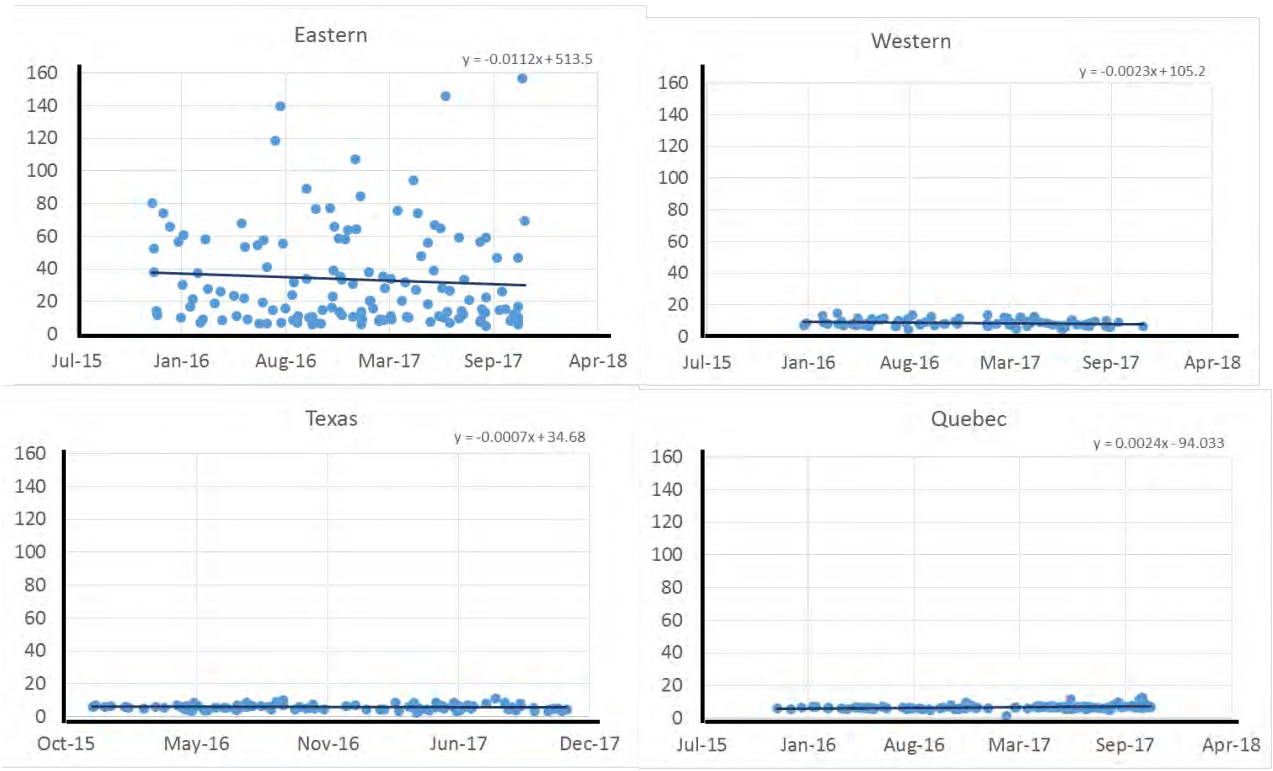



**Figure E.24: TCn–T0 (sec) for OY 2016 and 2017**



AMERICAN OVERSIGHT
EXT-18-2615-C-000198

# Appendix F: Reliability Indicator Trends

This appendix contains detailed supporting analysis for most of the reliability indicators (metrics) listed and assigned trending values as shown in **Table 3.1**. Any metric that particularly speaks to BPS reliability trend changes in 2016 is explained to some degree in **Chapter 3**. Those metrics might be completely covered in that chapter or might have more detailed analyses in this appendix. For those metrics that generally speak to reliability in any year, but did not identify trend changes in 2016, their analyses are completely contained in this appendix.

An exception is M-4: Interconnection Frequency Response. This metric is particularly important given current changes to the BPS resource mix and the fact that BAL-003-1.1 is currently open for revision and will affect M-4. **Chapter 2** and **Appendix E** provide expansive coverage of this metric.

## M-1 Planning Reserve Margin

### Background

This metric demonstrates the amount of generation capacity available to meet expected demand. It is a forward-looking or leading metric. PAS and RAS are collaboratively working to determine if there is a better metric for this report.

The *2018 Summer Reliability Assessment*[183] indicates, as shown in **Figure F.1**, that all Regions with the exception of Texas RE project sufficient reserve margins in the near term (five-year window).[184] Generation unit retirements that occurred in early 2018, along with reported delays in Tier 1 resource capacity by generation project developers, are expected to result in tight reserve margins for the upcoming summer. ERCOT has a variety of operational tools to help manage tight reserves and maintain system reliability. For example, control room operators can release Ancillary Services (including Load Resources that can provide various types of operating reserves depending on meeting certain qualification criteria), deploy contracted Emergency Response Service resources, instruct investor-owned utilities to call on their load management and distribution voltage reduction programs, request emergency power across the dc ties, and request support from available switchable generators currently serving non-ERCOT grids. A full description of the tools and procedures available to ERCOT, and the system conditions under which they are triggered, is provided in the ERCOT Nodal Protocols. See Chapter 6, Section 6.5.9.4, "Energy Emergency Alert."[185]

In the event that market-based solutions or other actions are not expected to be sufficient to avoid an Emergency Condition in the current or following season, the Nodal Protocols allow ERCOT to issue a procurement for generation and/or load capacity resources (An Emergency Condition is defined as "An operating condition in which the safety or reliability of the ERCOT System is compromised or threatened, as determined by ERCOT"). The process for issuing a capacity procurement is described in Nodal Protocol Chapter 6, "ERCOT Control Area Authority," Section 6.5.1.1(2).

Based on ERCOT's *Preliminary Summer Seasonal Assessment of Resource Adequacy* report,[186] released March 1, 2018, ERCOT expects that these operational tools could be needed to help maintain sufficient operating reserves given the range of resource adequacy scenarios evaluated. Note that subsequent to the release of the preliminary summer assessment report, Anticipated Resources has increased by 581 MW. This is attributable to a previously mothballed unit that is now expected to return to service in May 2018 (B. M. Davis Unit 1,300 MW), including a 226 MW planned

[183] The *2018 Summer Reliability Assessment* can be found at the following location: https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_05252018_Final.pdf

[184] The reserve margins in **Figure F.1** reflect the most critical peak season for each reporting entity when reserves are lowest. This includes consideration of whether each entity is summer or winter peaking.

[185] The ERCOT Nodal Protocols can be found at the following location: http://www.ercot.com/content/wcm/current_guides/53528/06-030118_Nodal.doc

[186] ERCOT's *Preliminary Summer Seasonal Assessment of Resource Adequacy* report can be found at the following location: http://www.ercot.com/content/wcm/lists/143976/SARA-PreliminarySummer2018.pdf

AMERICAN OVERSIGHT



EXT-18-2615-C-000199

natural-gas-fired resource with an expected in-service date of July 1, 2018, but which is not included in the preliminary summer assessment report due to a June 1 cut-off date used for summer assessment availability reporting and a previously unavailable 55 MW switchable generation unit that will now serve the ERCOT grid through 2019 (Antelope Unit 3).

In addition to ERCOT's actions to maintain sufficient operating reserves, higher wholesale market prices during peak demand periods are anticipated to incentivize power customers to voluntarily reduce load or increase energy output from load-serving generation facilities, such as industrial cogeneration and commercial-sector distributed generation that can inject power into the ERCOT System. Based on recent ERCOT analysis, the potential amount of this demand and generation response for the upcoming summer is significant but speculative because the ERCOT market has not experienced summer high prices subsequent to the market design changes implemented in 2012–2014. Consequently, this resource capacity is not reflected in the summer reliability assessment. ERCOT's analysis of price-driven participation from demand response and distributed generation is available in the *2017 Annual Report of Demand Response in the ERCOT Region*.[187]

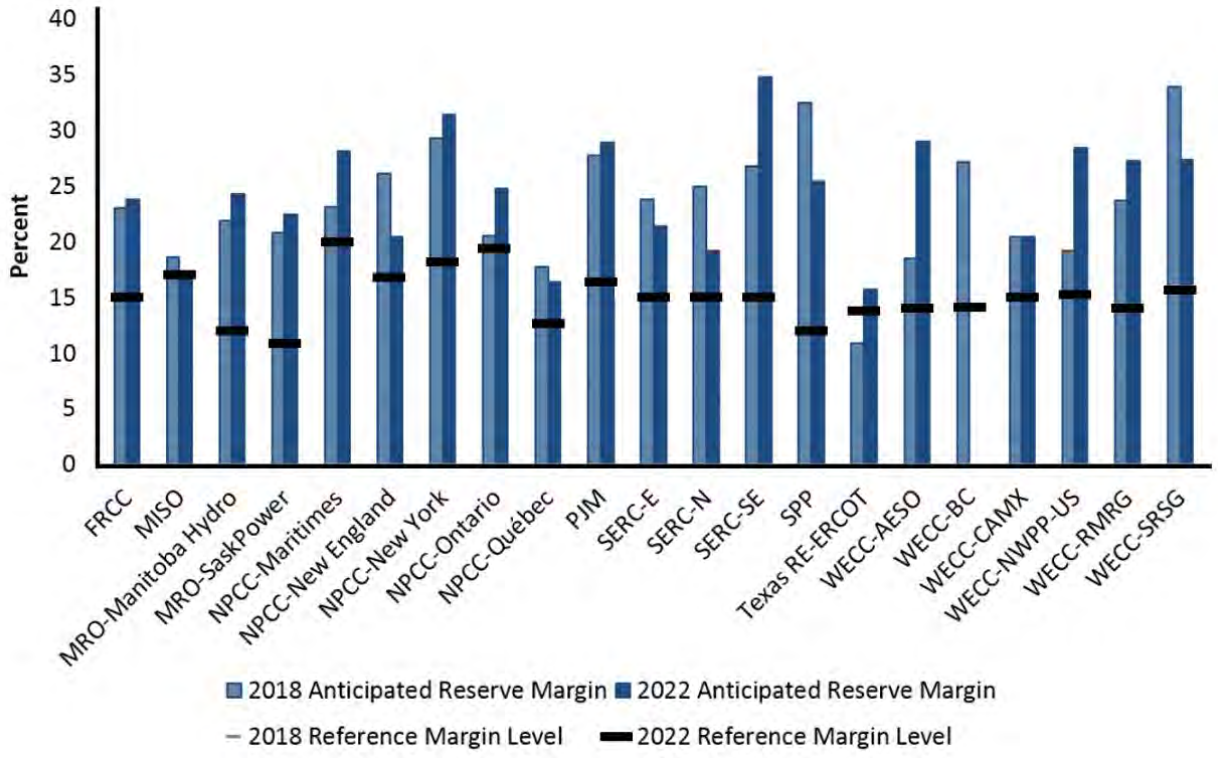



**Figure F.1: M-1 Planning Reserve Margin**

# M-3 System Voltage Performance

## Background

This metric was retired from the monitored set of metrics in 2014.

[187] The *2017 Annual Report of Demand Response in the ERCOT Region* can be found at the following location: http://www.ercot.com/content/wcm/lists/94805/2017_Annual_Report_of_Demand_Response_in_the_ERCOT_Region.docx

AMERICAN OVERSIGHT



EXT-18-2615-C-000200

### Future Development

Maintaining system voltage and adequate reactive control remains an important reliability performance objective that must be incorporated into the planning, design, and operation of the BES. The ERSWG developed a November 2015 framework report[188] that recommended a set of voltage measures with PAS assigned to develop data collection to support Measure 7: Reactive Capability on the System.

During 2016, PAS developed and conducted a voluntary data collection and released the data for analysis to the SAMS for analysis of Measure 7 as a potential voltage and reactive metric. During 2017, SAMS recommended to the PC that Measure 7 was not feasible, and the PC accepted the recommendation.

## M-6 Disturbance Control Standard Failures

### Background

This metric measures the ability of a BA or reserve sharing group (RSG) to balance resources and demand following a reportable disturbance, thereby returning the Interconnection frequency to within defined limits; this could include the deployment of contingency reserves. The relative percent recovery of a BA's or RSG's area control error provides an indication of performance for disturbances that are equal to or less than the most severe single contingency (MSSC). NERC Reliability Standard BAL-002-1[189] requires that a BA or RSG evaluate performance for all reportable disturbances and report findings to NERC on a quarterly basis.

## M-7 Disturbance Control Events Greater than MSSC

### Background

This metric measures the ability of a BA or RSG to balance resources and demand following reportable disturbances that are greater than their MSSC. The results will help measure how much risk the system is exposed to during extreme contingencies and how often they occur. NERC Reliability Standard BAL-002-1 requires that a BA or RSG report all disturbance control standard (DCS) events and instances of non-recovery to NERC, including events greater than MSSC.

### Assessment for M-6 and M-7

**Figure F.2** shows that the trend of M-6 DCS-reportable events is improved with less than half as many reportable events (M-6) in 2017 when compared to the 2016 data. **Table F.1** shows that in 2017, there was only one M-6 DCS event for which there was less than 100 percent recovery within the determined period.

**Figure F.2** also shows that the number of M-7 events were slightly lower in 2017 than in 2016, although still considerably lower than in 2012, 2013, or 2014. There was one M-7 event in 2016 for which 100 percent recovery was not achieved within the required timeframe.

Based on the similar annual results over the last four years, M-6 is stable.

Based on both the improvement in 2015–2017 and relative to 2012–2014, M-7 is stable for the short term in the approved state achieved in 2015.

[188] The 2015 ERSWG Framework report can be found at the following location: http://www.nerc.com/comm/Other/essntlrlbltysrvcstskfrcDL/ERSTF%20Framework%20Report%20-%20Final.pdf.

[189] Reliability Standard BAL-002-1 can be found at the following location: http://www.nerc.com/files/BAL-002-1.pdf.

AMERICAN OVERSIGHT



EXT-18-2615-C-000201

| Table F.1: M-6 and M-7 Event Recovery | | | | |
|---|---|---|---|---|
| YEAR | M-6 100% Recovery | M-6 < 100% Recovery | M-7 100% Recovery | M-7 < 100% Recovery |
| 2012 | 346 | 0 | 26 | 2 |
| 2013 | 390 | 3 | 28 | 2 |
| 2014 | 392 | 0 | 25 | 0 |
| 2015 | 370 | 1 | 12 | 0 |
| 2016 | 388 | 0 | 15 | 1 |
| 2017 | 165 | 1 | 12 | 1 |

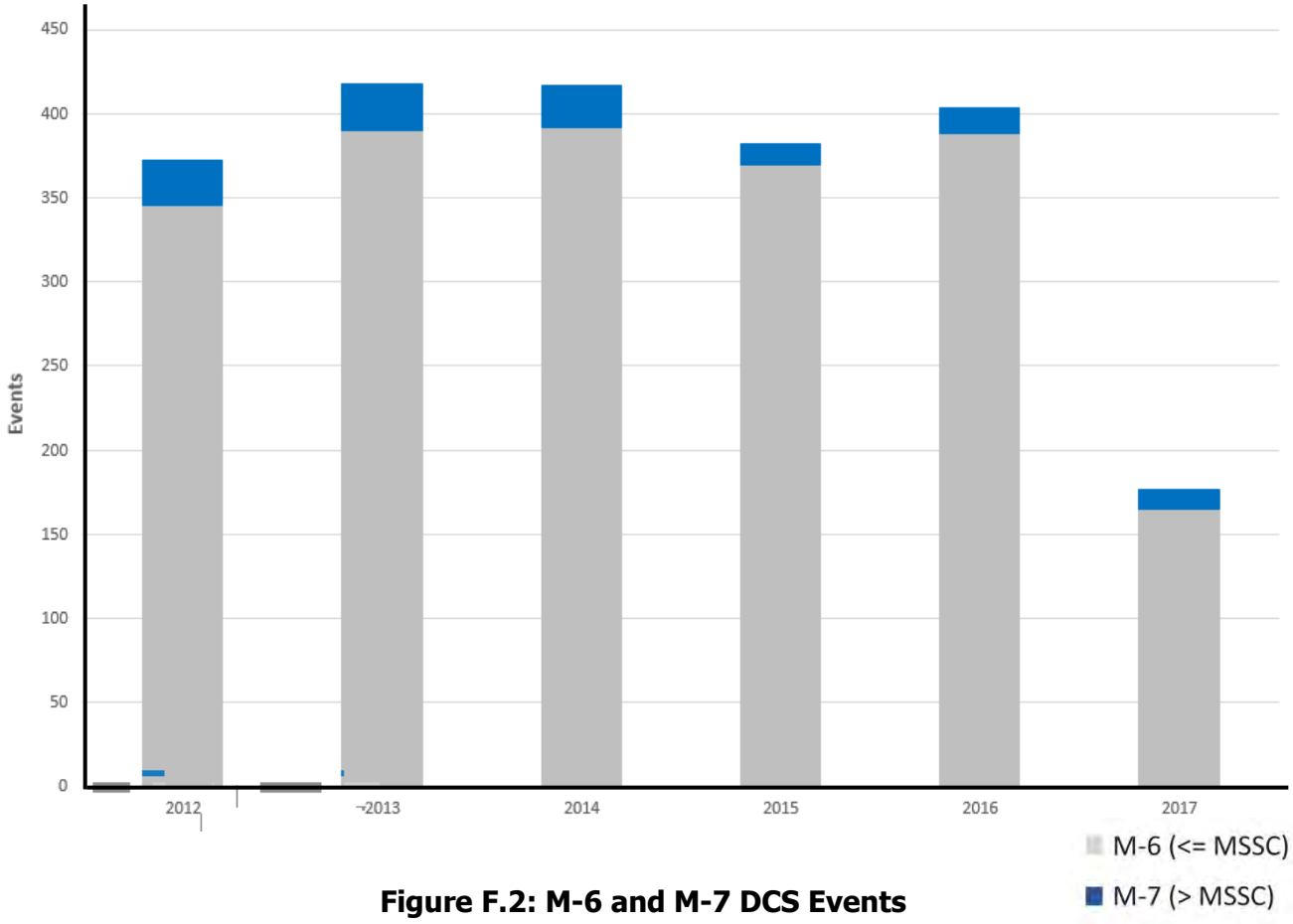



**Figure F.2: M-6 and M-7 DCS Events**

# M-8: Interconnection Reliability Operating Limit Exceedances

## Background

This metric measures the number of times and the duration that an IROL is exceeded. An IROL is a SOL that, if violated, could lead to instability, uncontrolled separation, or cascading outages.[190] Each RC is required to operate within the IROL limits and minimize the duration of such exceedances. IROL exceedance data are reported per quarter and uses four duration intervals as shown in **Figure F.3** through **Figure F.5**.

[190] $T_v$ is the maximum time that an Interconnection reliability operating limit can be violated before the risk to the Interconnection or other RC area(s) becomes greater than acceptable. Each Interconnection reliability operating limit's $T_v$ shall be less than or equal to 30 minutes.

AMERICAN OVERSIGHT



EXT-18-2615-C-000202

## Assessment

**Figure F.3** demonstrates the performance for the EI from 2011–2017. In 2017, the two ranges that were impacted were the 10 second to 10 minute range and the 10 minute to the 20 minute range. For the 10 second to 10 minute range, compared to the prior year's performance (by quarter), the number of exceedances increased for the first quarter; however, it declined for the remaining quarters. For the 10 minute to 20 minute range, compared to the prior year's performance (by quarter), the number of exceedances increased for the first quarter and second quarter; however, it declined for the third and fourth quarters.

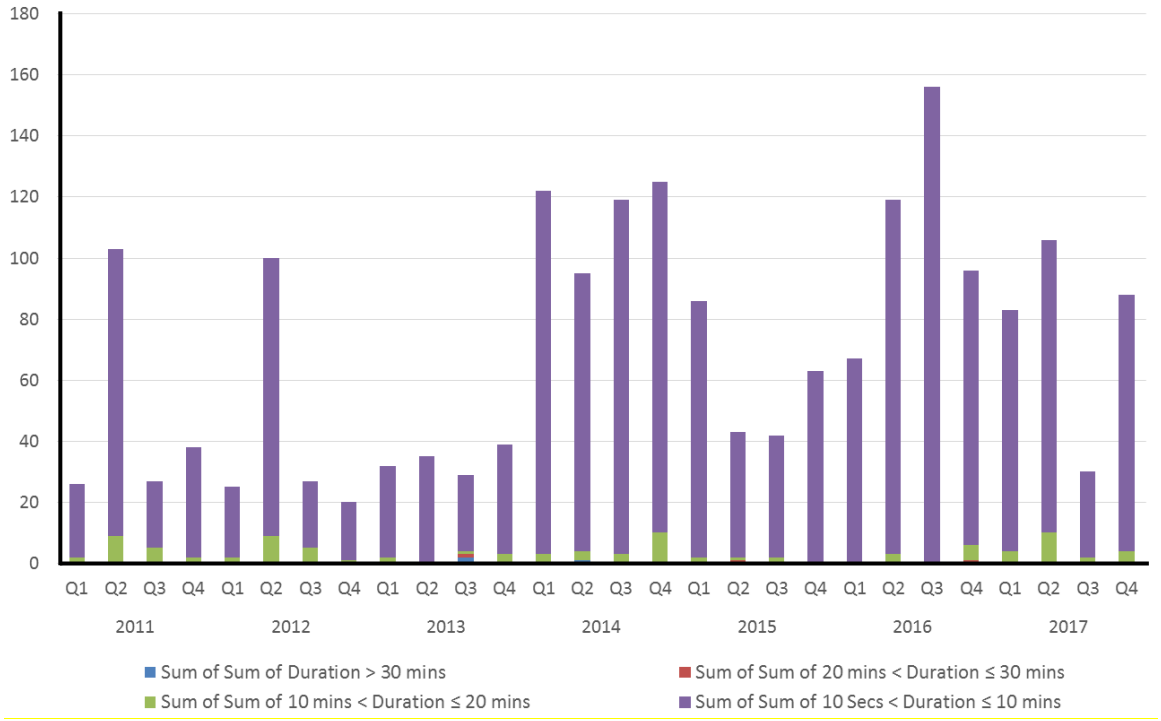



**Figure F.3: Eastern Interconnection—IROL Exceedances**

**Figure F.4** demonstrates the performance of the ERCOT Interconnection from 2011–2017. The trend has been stable at no exceedances since the second quarter of 2013.

AMERICAN OVERSIGHT



EXT-18-2615-C-000203

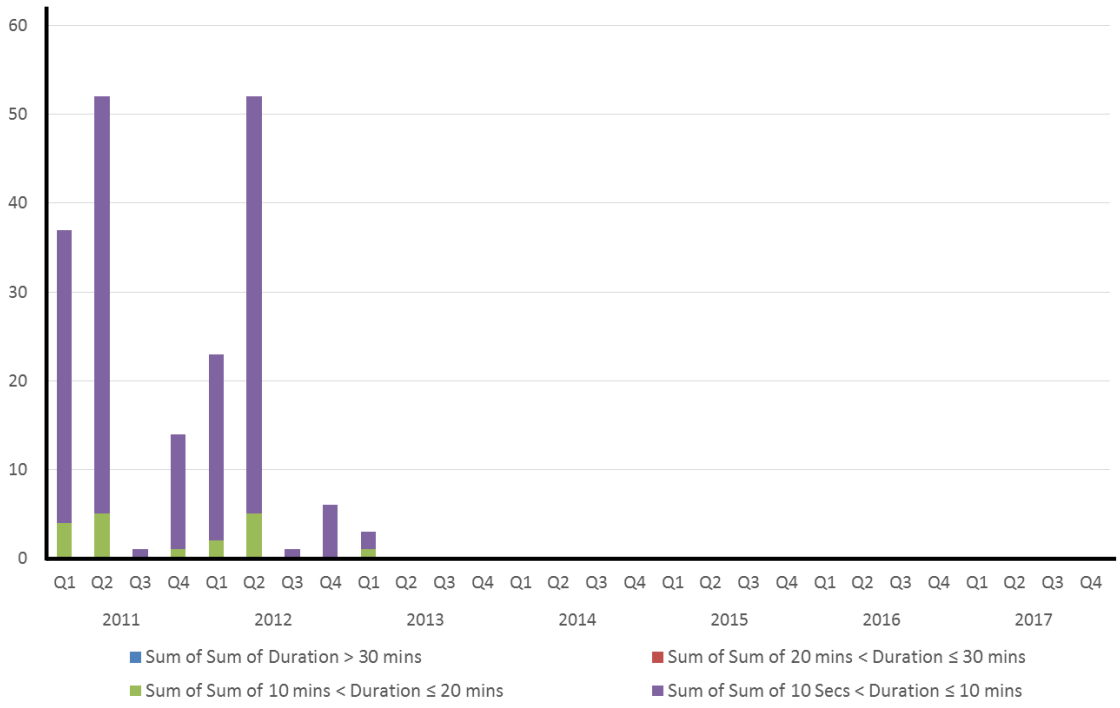



**Figure F.4: ERCOT Interconnection—IROL Exceedances**

**Figure F.5** demonstrates performance for the WI from 2011–2017. The *State of Reliability 2015*[191] noted changes in data reporting for the WI that led to the reporting of IROLs. Prior to 2014, only SOLs were reported. Since 2014, the trend has been stable with no IROL exceedances reported.

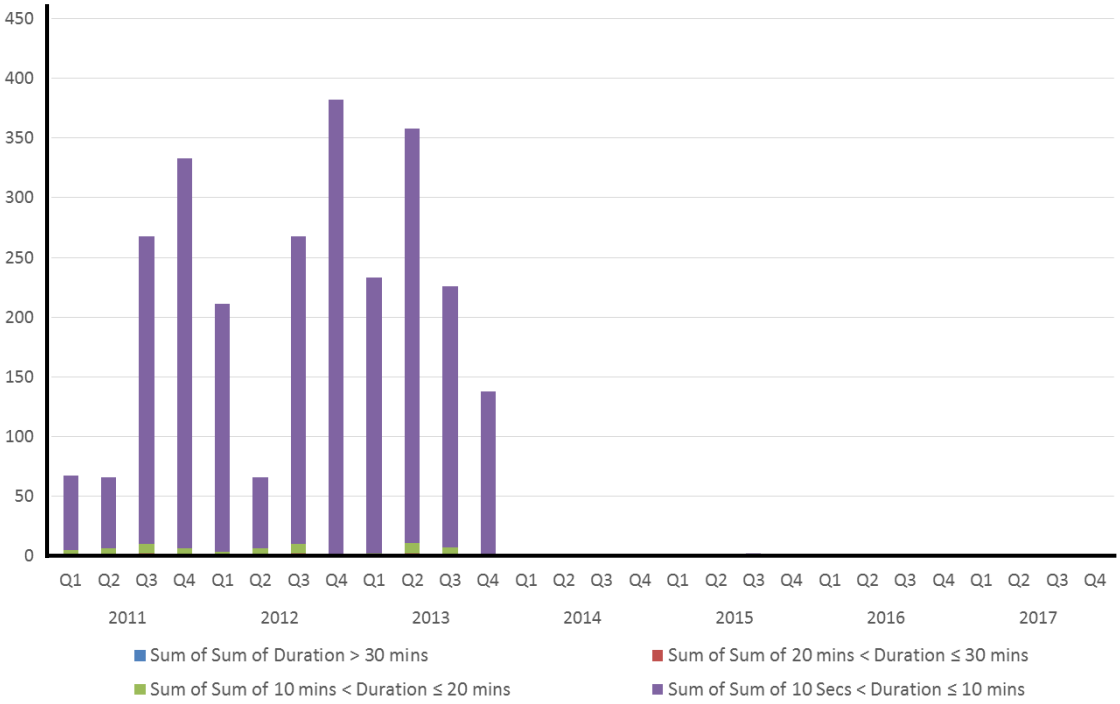



**Figure F.5: Western Interconnection—SOL/IROL Exceedances**

[191] The *State of Reliability 2015* can be found at the following location: https://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2015%20State%20of%20Reliability.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000204

# M-9 Correct Protection System Operations

## Background

Protection system misoperations were identified as an area that required further analysis in past *State of Reliability* reports. The improvements to the data collection process, that the SPCS proposed, were implemented and have improved the accuracy of misoperation reporting. At the recommendation of the SPCS, the respective protection system subcommittees (within each RE) began misoperation analysis in early 2014 and have continued to conduct such analysis on an annual basis. In 2017, NERC deployed a portal application that allows entities to securely upload and view their reported data.

## Assessment

**Figure 3.4** shows the correct operations rate for NERC during the reporting period. Total protection system operations were first requested with fourth quarter 2012 misoperation data. This is to reflect the updated metric M-9 Correct Protection System Operations. The rate provides a consistent way to trend misoperations and to normalize for weather and other factors that can influence the count. Incremental improvements continue to be seen.

**Figure F.6** shows the count of misoperations by month through the third quarter of 2017. The counts can show variability or similarity by year for each month and seasonal trends. For example, the chart shows higher numbers of misoperations in summer than the rest of the year.

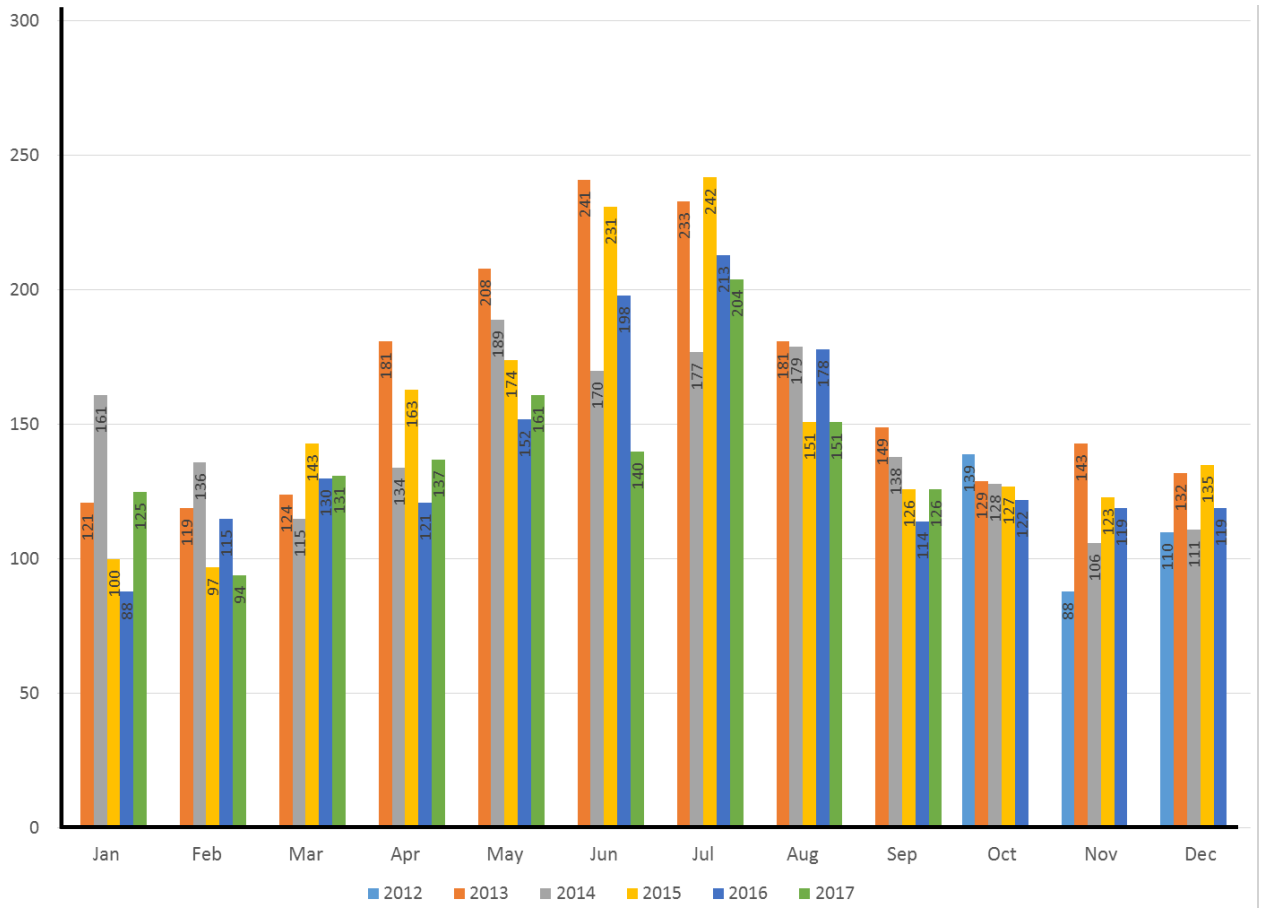



**Figure F.6: Protection System Misoperations by Month (4Q 2012 through 3Q 2017)**

**Figure F.7** illustrates misoperations by cause code where the top three causes continue to be Incorrect Setting, Logic, or Design Error; Relay Failures/Malfunctions; and Communication Failure. These cause codes have consistently



AMERICAN OVERSIGHT
EXT-18-2615-C-000205

accounted for more than 60 percent of all misoperations since data collection started in 2011. Recent reporting updates has broken down the single "Incorrect Setting, Logic, or Design Error" cause code into separate cause codes of "Incorrect Settings," "Logic Errors," and "Design Errors" as seen in the **Figure F.7**. The separation allows analysis at a higher granularity to address issues that may exist in one of the cause code subgroups.

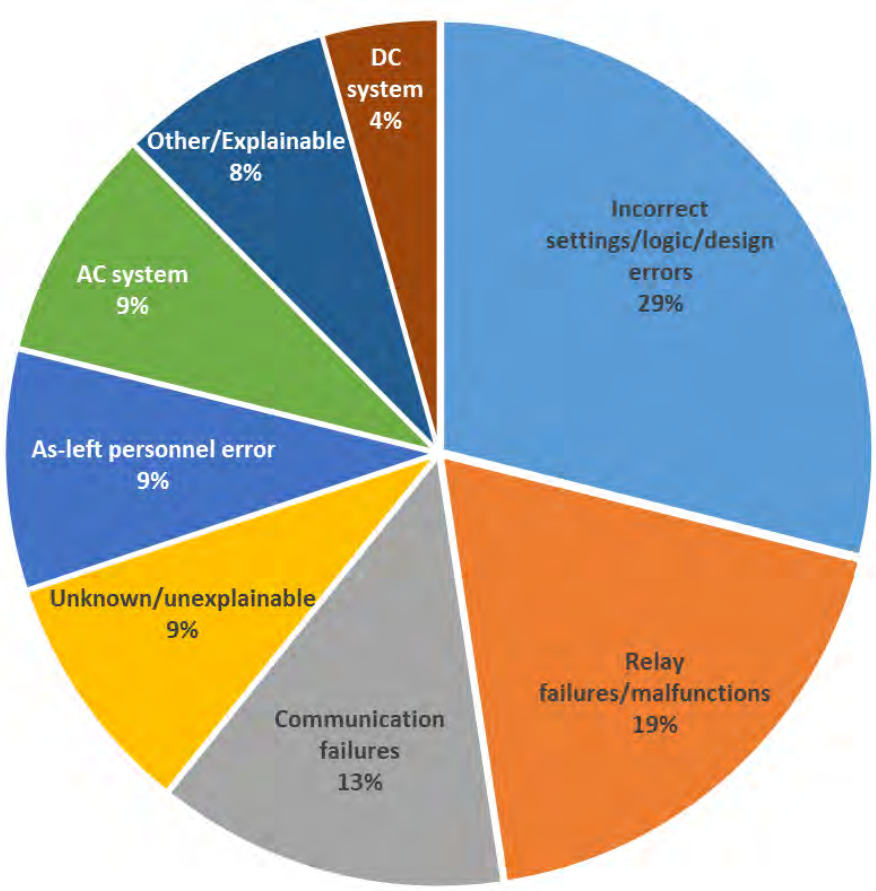



**Figure F.7: NERC Misoperations by Cause Code (4Q 2012 through 3Q 2017)**

## Linkage between Misoperations and Transmission-Related Qualified Events

An analysis of misoperation data and events in the EA Process found that in 2015 there were 50 transmission-related system disturbances that resulted in a qualified event. Of those 50 events, a total of 34 events, or 68 percent, had associated misoperations. Of the 34 events, a total of 33 of them, or 97 percent, experienced misoperations that significantly increased the severity of the event. There were four events where one or more misoperations and a substation equipment failure occurred in the same event. The relay ground function accounted for 11 misoperations in 2014, causing events that were analyzed in the EA Process. This was reduced to six events in 2015. It was further reduced to only one event in 2016. The focus on the relay ground function has been attended by a reduction in its involvement in qualified events. It is not clear if any statistical basis will be able to confirm that its role in relay misoperations has been similarly decreasing.

AMERICAN OVERSIGHT



EXT-18-2615-C-000206

## Actions to Address Misoperations

To increase awareness and transparency, NERC and the REs will continue to conduct industry webinars[192] on protection systems and document success stories on how GOs and TOs are achieving high levels of protection system performance. The quarterly protection system misoperation trend can be viewed on NERC's website.[193]

NERC introduced MIDAS in 2016, a data collection site for misoperations. In 2017, NERC replaced the data collection site with an application that allows the users to review, create, or update existing records with improved data validation and reporting through a secure portal integrated with NERC's ERO User Management System. NERC collaborates closely with the Regions to impart best practices and improve data collection.

## Summaries of Individual Regional Entity Initiatives

### *FRCC*

The FRCC SPCS continues to conduct peer reviews of protection system misoperations prior to the protection system owner submitting the data to NERC MIDAS. The FRCC SPCS is a Member Services subcommittee but includes FRCC RE staff as part of the review. In 2017 the FRCC SPCS established a temporary Misoperations Task Force made up of subject matter experts from the FRCC SPCS and FRCC RE staff to develop a misoperations assessment. The purpose of the assessment was to identify key focus areas and lay a path forward with recommendations and conclusions that will aid in reducing the risk to reliability related to the annual rate of misoperations. There were five recommendations that were included in the report; the first three focused on improving the misoperations reporting by completing the optional fields in the MIDAS form (more thorough reports, including one-line diagrams and/or pictures) provided when warranted) and conducting monthly reviews when reports are available to help keep all engaged. The last two recommendations were focused on correcting a data error that was found and reviewing the report for metrics to track going forward.

The 2017 Assessment showed that FRCC entities made steady progress in reducing the misoperation rate. Implementing the recommendations will ensure that focus remains on continuing to reduce the risk to reliability related to the annual rate of misoperations.

### *MRO*

In 2017, the MRO Protective Relay Subcommittee prepared and published a second white paper to discuss high impact misoperations and identify ways to increase the reliability (both security and dependability) of these misoperation types to minimize their occurrences. This second white paper addressed two types of misoperations, which are observed to have the most egregious impact on reliability: misoperations associated with bus differential and breaker failure relays.[194]

The MRO has also been focusing on accurate and consistent reporting of misoperations in order to acquire good data, which will allow for better attention to causes and (ultimately) solutions to misoperations. This is accomplished by reviewing submittals into MIDAS and working directly with entities to assure operations and misoperations are accurately recorded. MRO has also embraced the misoperation webinars that WECC will be hosting throughout 2018 by encouraging all of our MRO MIDAS data submitters to register and participate on these webinars.

[192] Information on misoperations industry webinars can be found at the following location: http://www.nerc.com/files/misoperations_webinar_master_deck_final.pdf

[193] Quarterly protection system misoperation trend can be found at the following location: http://www.nerc.com/pa/RAPA/ri/Pages/ProtectionSystemMisoperations.aspx

[194] Both of MRO's white papers addressing protection system misoperations can be found at the following location: MRO PRS Committee Technical Papers.



AMERICAN OVERSIGHT
EXT-18-2615-C-000207

### NPCC

The NPCC has instituted a procedure for peer review and analysis of all NPCC protection system misoperations. The NPCC review process is intended as a feedback mechanism that promotes continuous improvements based on lessons learned from reported protection system misoperations. The NPCC task force on system protection reviewed NERC lessons learned and NPCC-reported protection system misoperations while providing regional perspectives for entities' use to further improve performance and reduce misoperations.

NPCC collected additional data on microprocessor-based relay misoperations to develop potential measures that address misoperations caused by Incorrect Setting/Logic/Design Errors and to share knowledge of identified relay vendor specific product concerns along with the vendor recommended mitigations.

NPCC and SERC shared experiences identifying leading causes of protection system failures and misoperations as well as metrics used to measure performance. The two Regions shared best practices, processes, and criteria that support reducing protection system misoperations. NPCC also shared best practices and experience identifying leading causes of protection system failures and misoperations with MRO and RF. NPCC also completed comparative analyses of its protection system operation/misoperations data with SERC, MRO, and RF, using data submitted via MIDAS. The results were shared with SERC, MRO, and RF.

NPCC conducted a session on MIDAS Portal and areas of the Protection System Misoperation Review Working Group at the NPCC Fall Compliance/Standard Workshop in November 2017.

### RF

RF continues to address the NERC misoperation reduction goal by providing training opportunities on protection topics to RF's member entities and through other staff activities. The RF Protection Subcommittee has an annual training session provided by SEL for various aspects of microprocessor relays. Topics have included design concepts for protection communication systems and polarization techniques associated with protection system settings. Starting in 2015, RF began hosting an annual workshop for field protection engineers and technicians; these are the personnel directly responsible for the installation and (commissioning) testing of protection system equipment, and they ensure that these protection systems are installed and function as designed. Topics for these annual workshops have included power line carrier equipment, protection system commissioning and testing, consideration of HP in protection system design, and protection system drawings in 2018. The 2017 spring Reliability Workshop also dedicated a full day of activities to the topic of misoperations. RF will continue to offer these opportunities and has invited the other Regions to participate.

Beginning in 2016, RF implemented a misoperations peer review process utilizing members of the RF Protection Subcommittee to analyze the reported misoperations and to offer feedback on analysis and mitigation techniques. This process leverages the expertise and experiences of the Protection Subcommittee to help entities in the Region reduce their misoperations.

In 2015, RF staff conducted an internal controls evaluation on a large entity related to misoperations and continue to track that entity's progress on a regular basis. In 2016 and 2017, RF conducted a verification effort for short circuit values on tie lines between TOs. This effort was conducted to enhance coordination between TOs for their internal short circuit models. RF will continue to conduct this exercise every other year.

In 2018, RF will visit with three entities to discuss their misoperation performance and related activities to help reduce misoperations. RF conducted six similar visits in 2012. RF has also authored many lessons learned associated with misoperations.[195]

[195] The RF lessons learned regarding misoperations are posted on the RF public web site: https://www.rfirst.org/KnowledgeCenter/Risk%20Analysis/Misops/Pages/Misops.aspx .



AMERICAN OVERSIGHT
EXT-18-2615-C-000208

### SERC

The SERC Protection and Controls Subcommittee (PCS) has a very robust program to review quarterly misoperations and provide feedback to the entities. In 2016 SERC PCS created a SERC *Regional Best Practices for Protection System Misoperations Reduction*[196] paper for entities to reference. In order to evaluate the risk to the reliability of BES due to protection system misoperations, SERC PCS developed a metric to measure risk based on cause, category, voltage, misoperation rate, and corrective action plan (CAP) response time. The paper describing the methodology is posted on the SERC website. SERC trends the risk and shares its semiannually with SERC Engineering Committee to provide visibility of progress. In 2018, SERC plans to use the SERC data analytics program to develop insights to the misoperations in the SERC Region. The snapshot of the dashboard developed by SERC PCS in conjunction with SERC analytics team will be posted on SERC website. SERC closely monitors the CAP completion duration and routinely contacts the entity for the CAP open for more than two years. SERC PCS will continue to build on the solid foundation and develop new tools to improve the risk to reliability of BES caused by misoperations.

### SPP RE

The SPP System Protection and Control Working Group (SPCWG) has prepared a white paper discussing misoperations caused by communication failures,[197] a leading cause of misoperations in the SPP Region. The System Protection and Control Working Group is currently working on a white paper that discusses misoperations caused by Incorrect Settings/Logic/Design Errors, the second leading cause of misoperations in the SPP Region. These white papers then identify effective approaches to reduce misoperation occurrences.

### Texas RE

Texas RE continues to work with ERCOT's System Protection Working Group (SPWG) on the following:

- Monitoring of multiple metrics and historical trends for misoperations by voltage class, cause, corrective action plan completion rates, etc.
- Monitoring HP issues as it relates to the cause of misoperations
- Sharing NERC lessons learned and event cause codes from protection system misoperation events
- Presenting the analysis of quarterly protection system misoperation data and historical trends at each SPWG meeting
- Conducting the 2018 workshop that is planned in conjunction with a quarterly SPWG meeting to focus and brainstorm on high level best practices and mitigation strategies for misoperation reduction

Texas RE also tracks and trends misoperation performance in its annual Assessment of Reliability Performance for the Interconnection and is conducting an in-depth analysis to identify the key focus areas to reduce misoperations. In both 2016 and 2017, As-Left Personnel Errors replaced Communication Failures as the third highest cause for misoperations. This has led to a renewed focus on the HP causal factors for misoperations as well as operational processes and procedures for the commissioning and maintenance of protection systems.

### WECC

In 2017, WECC worked with a team of stakeholders to develop a strategy to reduce misoperations in the WI. This effort was aided by analysis performed by WECC's Relay Working Group (RWG) as well as analysis performed with WECC's Performance Analysis department. This team identified several areas where improvements could help reduce misoperations, and actions were assigned to WECC, the RWG, and registered entities. This effort was shared with

[196] The *Regional Best Practices for Protection System Misoperations Reduction* can be found at the following location: http://www.serc1.org/docs/default-source/committee/ec-protection-and-control-subcommittee/serc-regional-best-practices-for-protection-system-misoperations-reduction-8-19-2016.pdf

[197] The SPCWG white paper can be found at the following location: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.spp.org%2Fdocuments%2F23167%2Fspcwg_commmisops_white paper_final_mopc.doc



AMERICAN OVERSIGHT
EXT-18-2615-C-000209

industry with as part of WECC's first Misoperations Workshop, held in August 2017. Feedback from workshop participants was incorporated and the strategy was finalized. The timeline for this effort extends across multiple years as some of the tasks require time to implement and for improvement to be realized. In Q2 2018, WECC will publish this reduction strategy in an interactive online format that will be updated as progress is made on each of the tasks. WECC encourages entities to evaluate their individual systems and apply the recommendations that will be the most impactful to their operation.

During the Misoperation Workshop of 2017, WECC identified an inconsistency in the way operations and misoperations are being reported into the MIDAS Portal. To help bring consistency to this issue, WECC will host six webinars through 2018 that will help bring consistency to this reporting. The scenarios shared on the webinar are vetted through the ERO Enterprise and the RWG to ensure a consistent stance on each scenario. WECC feels this effort is important because the reduction of misoperations is based on a calculated misoperation rate. If this rate is inaccurate due to inconsistent reporting, the success of the strategy cannot be accurately measured.

WECC will host another Misoperations Workshop in June 2018. The content of this workshop is based on the topics identified in the reduction strategy.

## Misoperations Analysis

### *Misoperation Rate by Region and for NERC*

Table F.2 lists the NERC operation and misoperation counts and the corresponding misoperation rates by Region and for NERC with the 16 available quarters (Q4 2012 through Q3 2017). NERC's numbers are based on the combined data for the Regions available for the respective time periods.

**Table F.2: Operations and Misoperations by Region from Q4 2012 Through Q3 2017**

| Region | Operations | Misoperations | Misoperation Rate |
|---|---|---|---|
| FRCC | 3,831 | 328 | 8.6% |
| MRO | 7,339 | 763 | 10.4% |
| NPCC (Q1 2013 to Q3 2017) | 12,568 | 916 | 7.3% |
| RF | 13,186 | 1,741 | 13.2% |
| SERC | 20,861 | 1,703 | 8.2% |
| SPP | 10,193 | 1,109 | 10.9% |
| Texas RE | 11,307 | 809 | 7.2% |
| WECC (Q2 2016 to Q3 2017) | 9,280 | 469 | 5.1% |
| **NERC** | **88,565** | **7,838** | **8.8%** |

### *Comparison of Regional Misoperation Rates*

Regional misoperation and operation data were analyzed to find statistically significant differences[198] in misoperation rates between Regions based on the five-year data (except for Q1 2013 through Q3 2017 for NPCC and Q2 and Q3 2017 for WECC).

Figure F.8 lists the average five-year misoperation rate by Region ordered from highest (RF's rate of 13.2 percent) to the lowest (WECC's rate of 5.1 percent) and summarizes results of Duncan's grouping test[199] for the misoperation rates. Each bar connects Regions with similar (not statistically significantly different) expected misoperation rates.

[198] Large sample test on population proportions at the 0.05 significance level
[199] At significance level of 0.05.


AMERICAN OVERSIGHT
EXT-18-2615-C-000210

For example, differences in misoperation rate between SPP and MRO, connected by a red bar, are not significant, meaning that the percentage of operations resulting in misoperations in these two Regions are expected to be close.

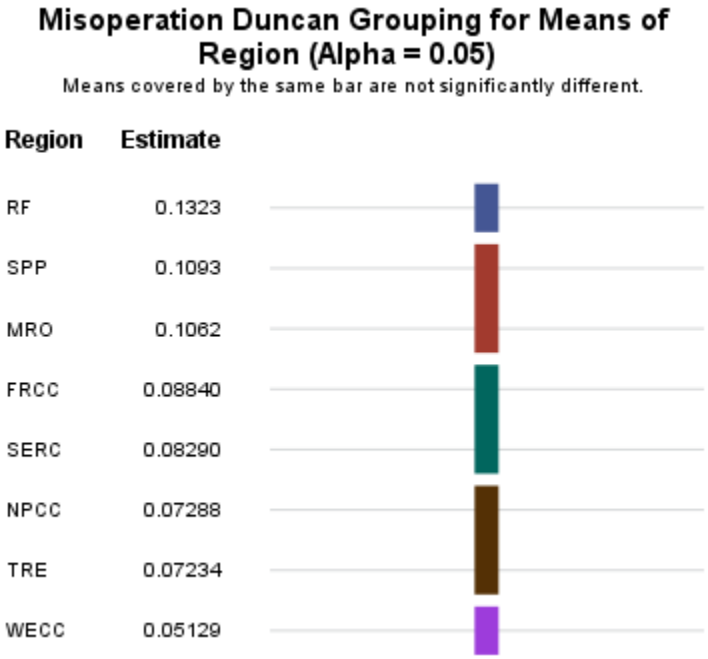



**Figure F.8: Misoperation Rate by Region (2Q 2012 through 3Q 2017) and Regional Grouping by Expected Misoperation Rate**

## M-10 Transmission Constraint Mitigation

This metric was approved for retroactive retirement by the PC in June of 2017. The metric measured the number of mitigation plans that included SPSs, RASs, and/or operating procedures developed to meet reliability criteria.

## M-11 Energy Emergency Alerts

### Background

To ensure that all RCs clearly understand potential and actual energy emergencies in the Interconnection, NERC has established three levels of energy emergency alerts (EEA). This metric measures the duration and number of times EEAs of all levels are issued and when firm load is interrupted due to an EEA Level 3 event. EEA trends may provide an indication of BPS capacity. This metric may also provide benefits to the industry when considering correlations between EEA events and planning reserve margins.

When an EEA3 alert is issued, firm-load interruptions are imminent or in progress. The issuance of an EEA3 may be due to a lack of available generation capacity or when resources cannot be scheduled due to transmission constraints.

### Assessment

Table F.3 shows the number of EEA3 events declared from 2006–2017. Six EEA3's were declared in 2017, four more than the previous year. The increase in EEA3s can mainly be attributed to the new EOP-011-1 that consolidated requirements from three standards: EOP-001-2.1b, EOP-002-3.1, and EOP-003-2. EOP-011-1 became effective April 1, 2017. The load loss is reduced from all years since 2013.

AMERICAN OVERSIGHT



EXT-18-2615-C-000211

| Table F.3: 2017 Energy Emergency Alert 3 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region | Number of Events | | | | | | | | | | | |
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| **NERC** | **5** | **26** | **13** | **38** | **7** | **23** | **14** | **6** | **4** | **1** | **2** | **6** |
| **FRCC** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 |
| **MRO** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **NPCC** | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **RF** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **SERC** | 2 | 14 | 2 | 0 | 3 | 2 | 7 | 0 | 1 | 0 | 0 | 0 |
| **SPP** | 1 | 9 | 8 | 37 | 4 | 15 | 6 | 2 | 0 | 0 | 0 | 0 |
| **Texas RE** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| **WECC** | 2 | 3 | 3 | 0 | 0 | 5 | 1 | 3 | 0 | 1 | 2 | 6 |

**Table F.4** shows the number of all EEAs declared in 2017, broken out by Region as well as event level.

| Table F.4: 2017 EEA Level by Region | | | | |
|---|---|---|---|---|
| **Region** | **EEA1** | **EEA2** | **EEA3** | **Total** |
| FRCC | 1 | 1 | 0 | 2 |
| MRO | 7 | 3 | 0 | 10 |
| NPCC | 2 | 0 | 0 | 2 |
| RF | 0 | 0 | 0 | 0 |
| SERC | 5 | 2 | 0 | 7 |
| SPP | 0 | 0 | 0 | 0 |
| WECC | 6 | 5 | 6 | 17 |
| Texas RE | 0 | 0 | 0 | 0 |
| **Grand Total** | **21** | **11** | **6** | **38** |

In **Figure F.9**, a graph is provided for 2013–2017, showing the duration and amount of load shed during an EEA, if any. The six EEA3's declared lasted 3.37 hours, and 0 MW of load was shed during the six EEA3 events that were declared.

AMERICAN OVERSIGHT



EXT-18-2615-C-000212

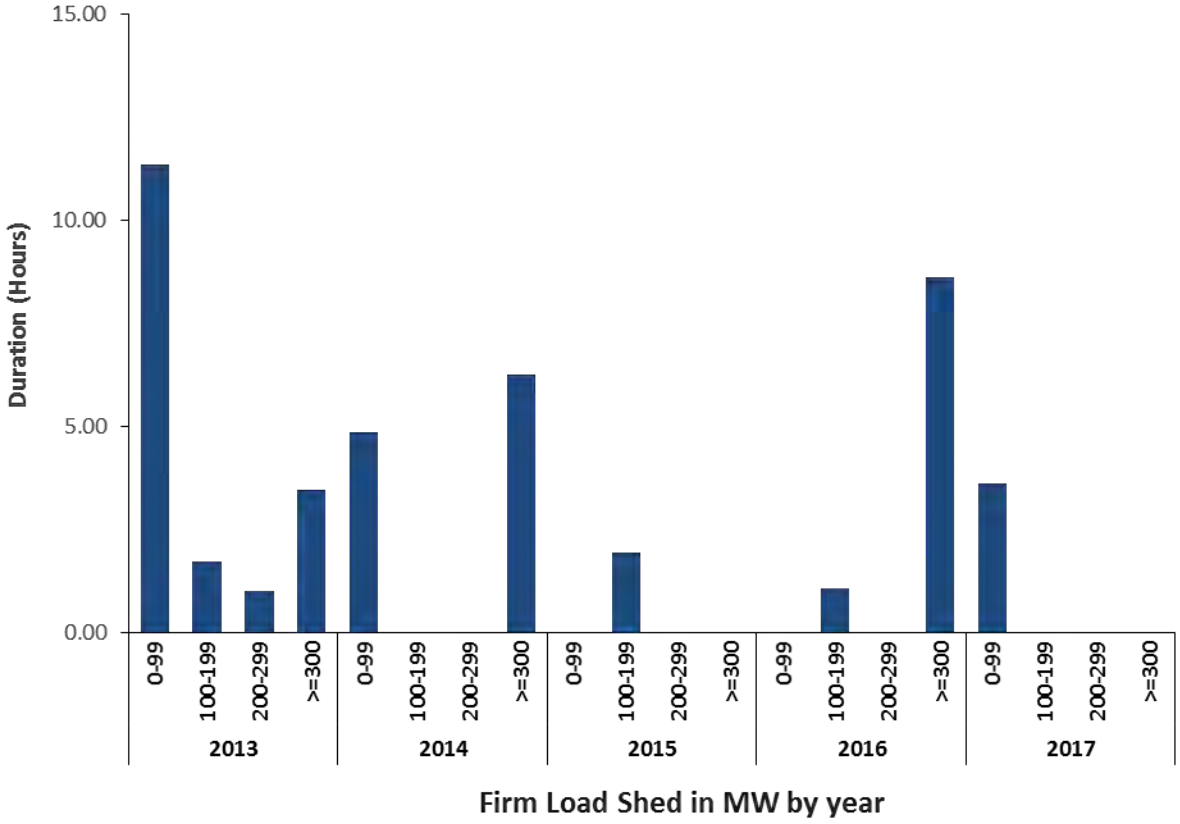



**Figure F.9: Firm Load Shed and Duration Associated with EEA3 Events by Year**



AMERICAN OVERSIGHT
EXT-18-2615-C-000213

# Appendix G: Event Analysis

This appendix highlights some event analysis activity not included in Chapter 6. Then it describes the EA Process, speaks to types and causes of events, and details the impacts of system protection misoperations on 2017 events. Finally, it augments information regarding Hurricanes Harvey and Irma presented in **Chapter 5** and provides a summary of the work of the EAS, NERC EA group, and larger ERO Enterprise EA groups.

## Energy Management System Working Group

### Fifth Annual Monitoring and Situational Awareness Conference

The EMSWG analyzes the events and data that are being collected about EMS outages and challenges. From the EA reports and the work of the EAS, NERC published multiple lessons learned specifically about EMS outages and worked to build and support an industry-led EMSWG to support the EAS. The hard work and active sharing of this group has reduced some of the residual risk associated with this potential loss of situation awareness and monitoring capability that comes with an EMS outage, and they will continue to provide valuable information to the industry.

### Risks and Mitigations for Losing EMS Functions Reference Document

The industry's voluntary ERO EA Process provides information to the ERO and industry on the categories and causes of qualifying events. Review and analysis of both EMS and non-EMS events can identify potential reliability risks or vulnerabilities to the BPS that need to be mitigated. Secondly, there are several major initiatives underway in EA to improve reliability: HP improvement, analysis of the 2016–2017 winter season's effect on resource availability, and the publishing of lessons learned throughout 2017.

NERC hosted its fifth annual Monitoring and Situational Awareness Conference on October 3–4, 2017, at the Georgia Power Company Corporate Headquarters in Atlanta, GA. The conference brought together more than 120 operations and EMS experts from registered entities, government regulators, and a variety of vendors and consultants from all Regions and Canada. The focus was on energy management systems quality, including modeling and real-time assessments. William Ball, chief transmission officer and executive vice president of Southern Company, delivered the keynote presentation and spoke on the importance of continued development of elegant EMS tools and systems with built-in security and resiliency to face the challenges of the future. Conference highlights include a presentation on the Modeling and Real-Time Assessment Tool, a presentation of lessons learned from recent EMS outages, and several panel discussions led by industry experts and EMS vendors. The conference presentations are available on the NERC website.[200]

### Reference Document on EMSWG Risks and Mitigations for Losing EMS Functions

The EMSWG released a reference document[201] about risks and mitigations for losing EMS functions. The reference document briefly describes what an EMS is, the various parts of it, and the dependency between the parts; then the reference document analyzes 318 EMS events reported by 130 NERC registered entities between October 2013 and April 2017 through the ERO EA Process. Based on the analysis, the reference document identifies and discusses the risk of losing EMS functions, analyzes the causes of reported EMS events, and shares mitigation strategies to reduce these risks.

[200] Conference presentations can be found at the following location: http://www.nerc.com/pa/rrm/Resources/Pages/Conferences-and-Workshops.aspx

[201] The reference document can be found at the following location: http://www.nerc.com/comm/OC/ReferenceDocumentsDL/Risks_and_Mitigations_for_Losing_EMS_Functions_Reference_Document_20171212.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000214

The following are concluded in the reference document:

- According to the available data, although the number of events seems significant, it was observed that the actual EMS availability was 99.99 percent during the term (between October 2013 and April 2017).
- Software and telecommunications failure are major contributors to the loss of EMS functions.
- The loss of EMS functions has not directly led to the loss of generation, transmission lines, or customer load. However, it is important to note that the loss of EMS functionality has contributed to events because it limited system operators' capability to maintain situational awareness.
- Mitigating actions have been effective during EMS events to manage risks within acceptable levels.

## Event Analysis Process

Since its initial implementation in October of 2010, the EA Process has collected 1,080 qualified events and yielded 134 lessons learned, including nine published in 2017.[202]

The first step in the ERO EA Process is BPS awareness and the monitoring of the BPS for reliability incidents. BPS conditions provide recognizable signatures through automated tools, mandatory reports, voluntary information sharing, and third-party publicly available sources. The majority of these signatures represents conditions and occurrences that have little or no reliability impact. The ERO Enterprise monitors these signatures for significant occurrences and emerging risks and threats across North America.

Registered entities continue to share information and collaborate with the ERO well beyond any mandatory reporting in order to maintain and improve the overall reliability of the grid. Only a small subset of the reported occurrences rise to the level of a reportable event. **Table G.1** provides details on the 2017 mandatory reports and other information that is translated into products that address reportable events.

**Table G.1: Situational Awareness Inputs for 2017 Products**

| Information Received | Products |
|---|---|
| **Mandatory Reports** | 228 daily reports |
| 153 DOE OE-417 Reports | 14 special reports for significant occurrences |
| 334 EOP-004-3 Reports | |
| 0 EOP-002-3 Reports (Retired in 2017) | 2 reliability-related NERC Advisory (Level 1) Alerts |
| **Other Information**[203] | 683 new EA entries (known as "Notifications" and associated with the 181 qualified events and the 310 nonqualified occurrences) |
| 3,136 Intelligent Alarms Notifications | 2 reliability-related NERC Recommendation (Level 2) Alerts |
| 4,238 FNet/Genscape Notifications and 250 Daily Summaries | |
| 357 Peak Reliability Messages (PRM) | |
| 1,506 RCIS Messages | |
| 2,360 Space Weather Predictive Center Alerts | |
| 1,075 Assorted US Government Products | |
| 5,689 Assorted Confidential, Proprietary, or Nonpublic Products | |
| 2,205 Reliability Coordinator (RC) and ISO/RTO Notifications | |

[202] The link to the NERC Lessons Learned page: http://www.nerc.com/pa/rrm/ea/Pages/Lessons-Learned.aspx
[203] Information sources are listed in no particular order or priority and not limited to these resources.


AMERICAN OVERSIGHT
EXT-18-2615-C-000215

## Reported Events

Using automated tools, mandatory reports, voluntary information sharing, and third-party publicly available sources, disturbances on the grid are categorized by the severity of their impact on the BPS. Table G.2 contains the count of reportable events. Additional information on the EA Process can be found on the NERC website.[204] As of January 1, 2017, a new EA Process version became effective.[205]

**Table G.2: Events Analysis Event Summary—2017**

| Event Category | Count - Total | Count | Comments |
|---|---|---|---|
| CAT 1 | 890 | 176 | 58—3 or more BPS facilities lost (1a)<br>7—BPS SPS/RAS Misoperation (1c)<br>1—Voltage reduction > 3% (1d)<br>1—Unintended Islanding (1e)<br>3—Unintended loss 1,000-1,999MW generation in ERCOT (1g)<br>106—EMS (1h) |
| CAT 2 | 165 | 3 | 2—Unintended loss of load (2f)<br>1—IROL Violation |
| CAT 3 | 18 | 0 | |
| CAT 4 | 3 | 0 | |
| CAT 5 | 4 | 2 | Hurricane Harvey<br>Hurricane Irma |
| **Total CAT 1–5 Events** | **1,080** | **181** | |
| **Nonqualified Occurrences Reported** | **2,844** | **310** | |

## Energy Management System Events

EMS is a system of computer-aided tools used by System Operators to monitor and control the BES. The EMS provides situational awareness and allows System Operators to make efficient and effective decisions.

The EA process is an effective tool for analyzing reported events and identifying risks; however, the distinct differences in EMS (1h events) and non-EMS events required the ERO Enterprise to evaluate the event separately.

The EMSWG analyzes the events and data collected about EMS outages and challenges. From the EA reports and the work of the EAS, supported by the EMSWG, NERC published multiple lessons learned specifically about EMS outages. The hard work and the active sharing from the EMSWG is attempting to reduce some of the residual risk associated with the potential loss of situational awareness and monitoring capability that comes with this type of event, and

[204] EA process in effect through the end of 2016: http://www.nerc.com/pa/rrm/ea/EAProgramDocumentLibrary/ERO_EAP_V3_final.pdf
[205] EA Process in effect as of January 1, 2017: http://www.nerc.com/pa/rrm/ea/ERO_EAP_Document/ERO_EAP_v3.1.pdf

AMERICAN OVERSIGHT

EXT-18-2615-C-000216

EXT-18-2615-C-000217

they will continue to provide valuable information to the industry. The EMSWG published a reference document, *Risks and Mitigations for Losing EMS Functions Reference Document,*[206] to identify and discuss the risk(s) of losing EMS functions, analyze the causes of EMS events, and share mitigation strategies to reduce the risks.

## Statistical Process Control

For trending of the number of events, NERC uses a standard Statistical Process Control method that results in control charts. The control chart provides control limits that are calculated by using an Individuals-Moving Range calculation. In this way, there is no unnecessary reaction to what would be considered normal variation in the numbers of events reported. This also helps determine what "normal" looks like when determining if any anomalies have occurred.

**Figure G.1** is the control chart for the 1080 Qualified Events through 2017. In October 2013, when Version 2 of the EA Process introduced a new category of events, collectively known as Category 1h: Partial Loss of the EMS, occurrences that were not previously reported became visible and a shift in the control limits occurred. The control chart of events in 2017 shows the numbers of events were stable and predictable until a rash of EMS events in October (as shown in **Figure G.2** and **Figure G.3**). These multiple events were the result of the inability to resolve problems quickly with a newly installed (system change out) EMS system, and (for one entity) simply not identifying the cause of a problem until it had occurred multiple times.

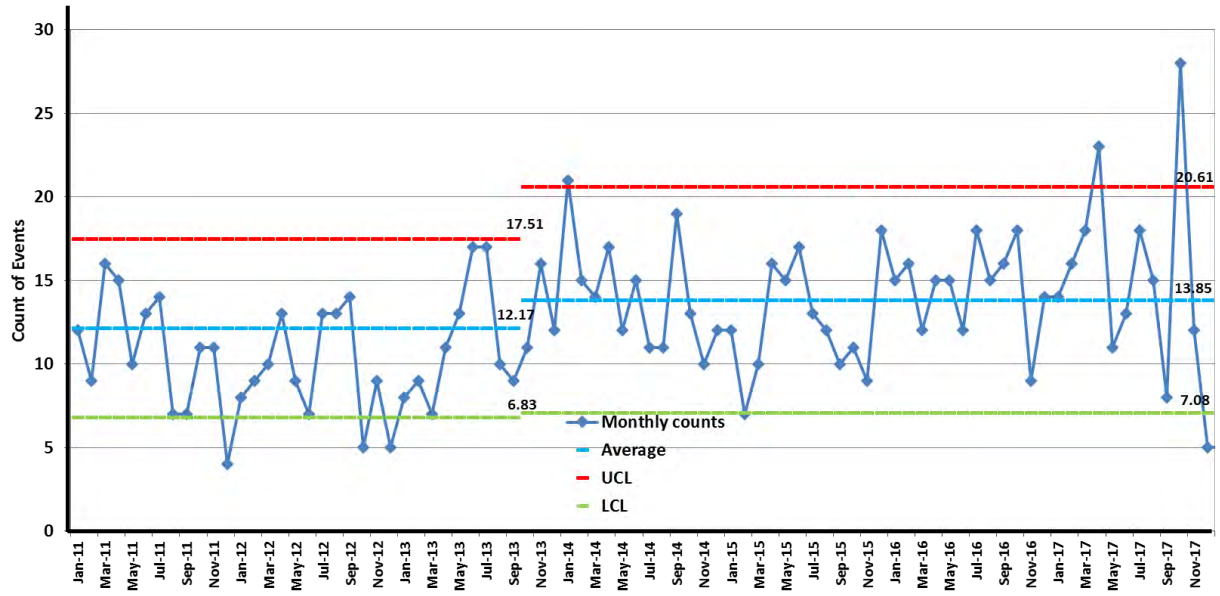



**Figure G.1: Control Chart for the Number Events (Per Month) Over Time**

[206] *Risks and Mitigations for Losing EMS Functions Reference Document* can be found at the following location: http://www.nerc.com/comm/OC/ReferenceDocumentsDL/Risks_and_Mitigations_for_Losing_EMS_Functions_Reference_Document_20171212.pdf

AMERICAN OVERSIGHT

EXT-18-2615-C-000218

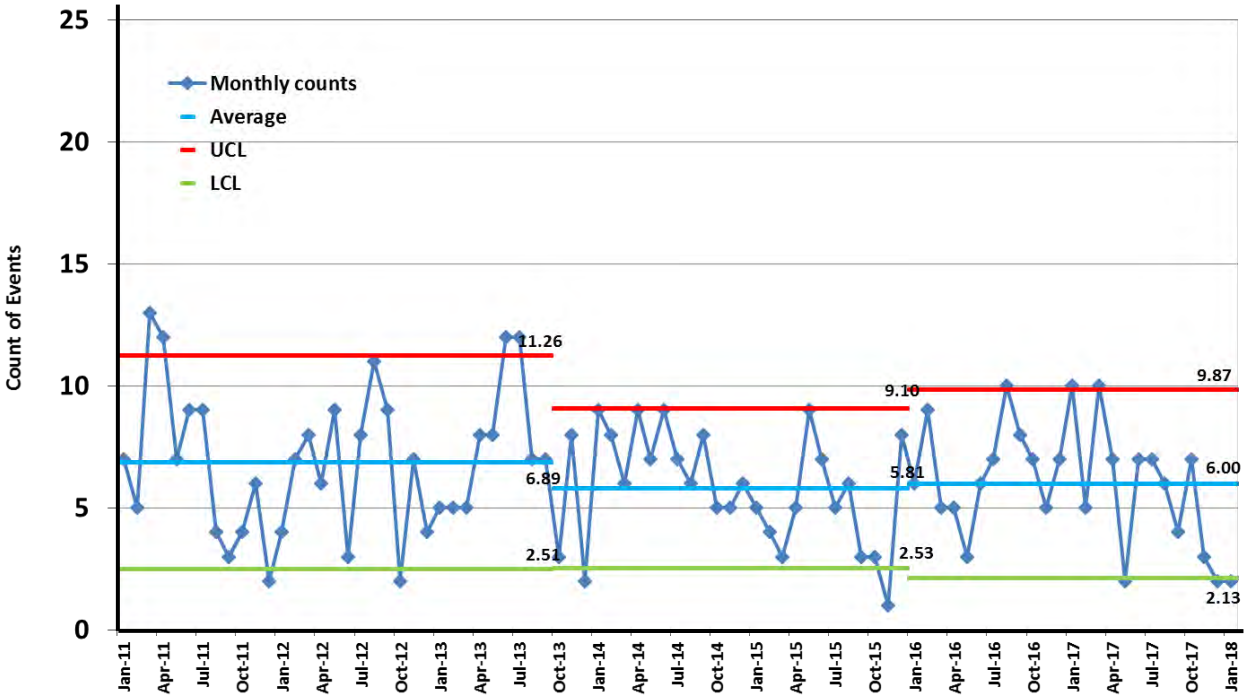



**Figure G.2: Control Chart for the non-EMS Events (Per Month) Over Time**

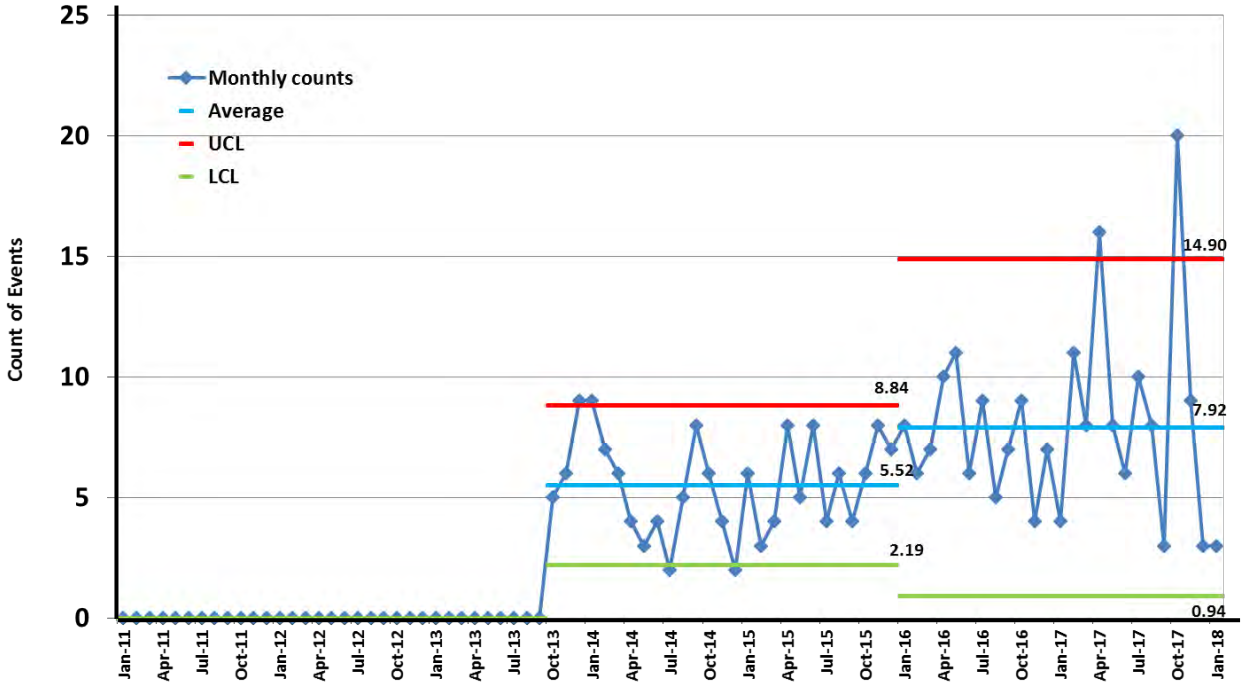


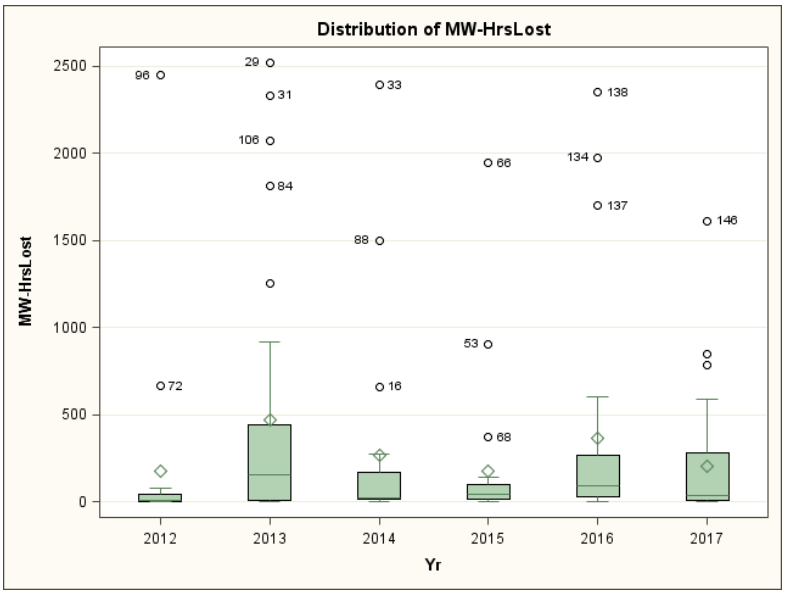

**Figure G.3: Control Chart for the EMS Events (Per Month) Over Time**

Reviewing the events for which firm load loss was reported, from 2012–2017 (excluding 2011, the first full year of reporting for a new process), the years appear to be similar (not statistically different, when analyzed), as shown in Figure G.4. If a load loss event occurs, looking at the full set of load loss events (151 events, out of 931 reported



AMERICAN OVERSIGHT

events, 2012–2017) the average outage is 288 MWh, but there is a great deal of variation (572MWh) in the sample. Therefore, a better evaluation is the median, which is 54 MWh.




| Year | Number of Events | MWh Lost | |
|---|---|---|---|
| | | Mean | Std Dev |
| 2012 | 19 | 179.04 | 569.84 |
| 2013 | 33 | 469.63 | 719.23 |
| 2014 | 21 | 269.32 | 594.55 |
| 2015 | 24 | 173.01 | 421.78 |
| 2016 | 24 | 363.53 | 657.42 |
| 2017 | 30 | 203.21 | 353.67 |

**Figure G.4: Analysis of Firm Load Loss events by Year**

## Causes of Events

Through the EA Process, cause codes were assigned to 943 of the 1080 events, leading to 3,282 root or contributing cause codes being identified. The root cause of every event cannot be determined though many of the contributing causes or failed defenses can be established. Figure G.5 shows the overall breakdown of the identified cause codes of events.

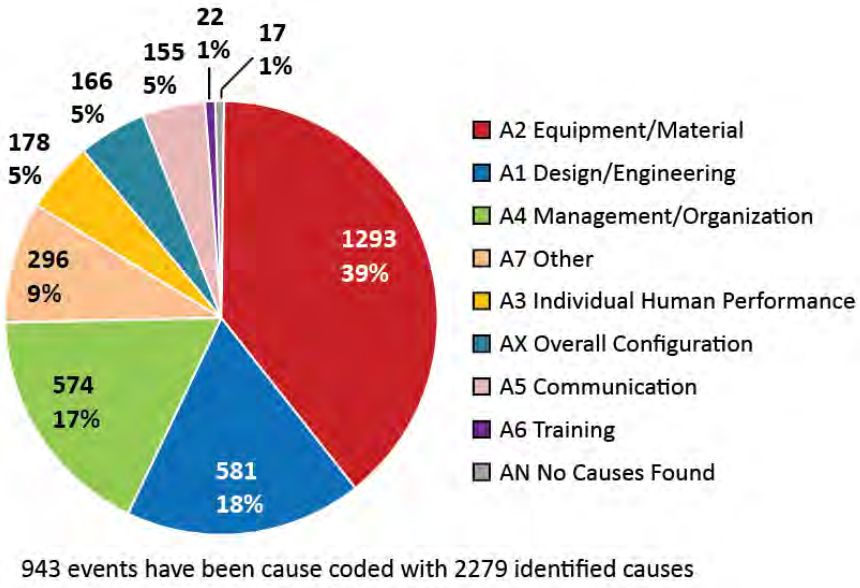



**Figure G.5: The Percentage of Contributing Causes by Major Category**

Identification of these areas of concern allows for the prioritization and search for actionable threats to reliability. Following recommendations from the AC Substation Equipment Task Force (ACSETF) report, an addendum was

AMERICAN OVERSIGHT



EXT-18-2615-C-000219

developed for the types of information needed to support the EA Process when failed equipment is identified.[207] For example, NERC EA has created a template to collect additional information for substation equipment failures and will continue to analyze the data for common themes. NERC published a lessons learned in March 2017, *Slow Circuit Breaker Operation Due to Lubrication Issues*.[208]

### *Events with Misoperations and Substation Equipment Failure*

Another analysis performed to provide information needed to support the EA process regarding failed equipment is the historical review of non-EMS events for those initiated or that had increased severity due to a Misoperation or Substation Equipment Failure. This analysis has been performed and outlined in NERC's annual *State of Reliability* reports since 2015, and the results are outlined in **Table G.3** and **Table G.4**.

Out of the 75 non-EMS events in 2017, a total of 39 of these events (52 percent) experienced one or more misoperations. In 38 of these events, the misoperations exacerbated the severity of the event. Of these 39 events with misoperations involved, 11 events (28 percent) experienced a breaker failure scheme misoperation or bus differential misoperation. These types of misoperations typically have a high impact on the BPS, particularly when they clear a straight bus with multiple facilities. The table also includes the total misoperations reported MIDAS

**Table G.3: Historical Data for Protection System Misoperations Associated with Events**

| | 2015 | 2016 | 2017 | Total |
|---|---|---|---|---|
| Non-EMS Events | 50 | 85 | 75 | 210 |
| Events with Misoperations | 34 | 55 | 39 | 128 |
| Percentage of Non-EMS Events with Misoperations | 68% | 65% | 52% | 61% |
| Number of Breaker Failure/Bus Differential Misoperations | 14 | 27 | 11 | 52 |
| Total Reported Misoperations in MIDAS | 1,492* | 1,590 | 1,599 | 4,681 |
| Percentage of Misoperations that rise to a Reportable Event | 2.3% | 3.4% | 2.4% | 2.7% |

*2015 MIDAS misoperations count does not include WECC.

Of the 75 non-EMS events in 2017, a total of 26 (35 percent) experienced substation equipment failures. These substation equipment failures were either the initiating cause of the event or they subsequently increased the severity of the event. The substation equipment failures were as follows:

**Table G.4: Historical Data for Substation Equipment Failures Associated with Events**

| | 2015 | 2016 | 2017 | Total |
|---|---|---|---|---|
| Non-EMS Events | 50 | 85 | 75 | 210 |
| Events with Substation Equipment Failures | 12 | 29 | 26 | 67 |
| Percentage of Non-EMS Events with Substation Equipment Failures | 24% | 34% | 35% | 32% |
| TADS outages initiated by Substation Equipment Failures | 667 | 639 | 611 | 1,917 |
| Percentage of Reportable SSE Events versus TADS SSE outages | 1.8% | 4.5% | 4.3% | 3.5% |
| | | | | |
| Types of Substation Equipment Failures | | | | |
| • Breaker Failures | 6 | 10 | 13 | 29 |
| ▪ Slow or Stuck Breakers | | 8 | 10 | 18 |
| • Relay/Protection System Failures | | 1 | 11 | 12 |

[207] The EA Process documents can be found at the following location: http://www.nerc.com/pa/rrm/ea/Pages/EA-Program.aspx
[208] The lesson learned can be found at the following location: http://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20170301_Slow_Circuit_Breaker_Operation_Due_to_Lubrication_Issues.pdf

AMERICAN OVERSIGHT



EXT-18-2615-C-000220

| Table G.4: Historical Data for Substation Equipment Failures Associated with Events | | | | |
|---|---|---|---|---|
| | 2015 | 2016 | 2017 | Total |
| • Current Transformer/Voltage Transformer Failures | 1 | 2 | 4 | 7 |
| • Circuit Switcher Failures | | 3 | 3 | 6 |
| • Insulator Failures | | 1 | 3 | 4 |
| • Surge Arrestor Failures | 2 | 2 | | 4 |
| • Shunt Capacitor/Shunt Reactor Failures | 2 | 2 | | 4 |
| • Other Equipment (Static Wire, Bushings, Transformers) | 3 | 1 | 2 | 6 |

NERC EA began a new initiative in 2017, identifying Failure Modes and Mechanisms (FMM) as they apply to substation equipment failures. Detailed FMM diagrams for eight types of common substation equipment have been drafted and sent out for industry review. The top tiers on the diagrams will be the basis for equipment failure codes, similar in format to the current EA cause codes. The capture of data for the equipment FMM codes will be performed in the EA process using an enhanced Failed Substation Equipment Addendum. These new codes will be used in future years for finding patterns in and trending physical causes of equipment failures and provide the data detail that was missing in the ACSETF effort.[209]

Asset management and maintenance was identified as a low-priority risk by the Reliability Issues Steering Committee.[210] Low-priority risks do not mean that possible reliability impact is small but rather the profiles are understood with clearly identifiable steps that can be taken to manage risk. The failure to properly commission, operate, maintain, and upgrade BES assets could result in more frequent or more severe outages as equipment failures initiate or exacerbate events.

A related area, Configuration Management, was highlighted by an event where digital controls were not updated in line with physical plant changes over time. This was described in lessons learned: *Generator Trip While Performing Frequency Response*.[211]

A similar identification of trends can be observed in the large contribution of "less than adequate" or "needs improvement" cause factors in management and organizational practices that have been seen to contribute to events. Many of these threats can be identified and shared with the industry for awareness. For example, see **Figure G.6** where the identification of some of the challenges to organization and management effectiveness are identified.

[209] The ACSETF report can be found at the following location: https://www.nerc.com/comm/PC/AC%20Substation%20Equipment%20Task%20Force%20ACSETF/Final_ACSETF_Report.pdf

[210] The RISC report can be found at the following location: http://www.nerc.com/comm/RISC/Related%20Files%20DL/ERO_Reliability_Risk_Priorities_RISC_Reccommendations_Board_Approved_Nov_2016.pdf

[211] The lesson learned can be found at the following location: http://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20170601_Generator_Trip_While_Performing_Frequency_Response.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000221

EXT-18-2615-C-000222

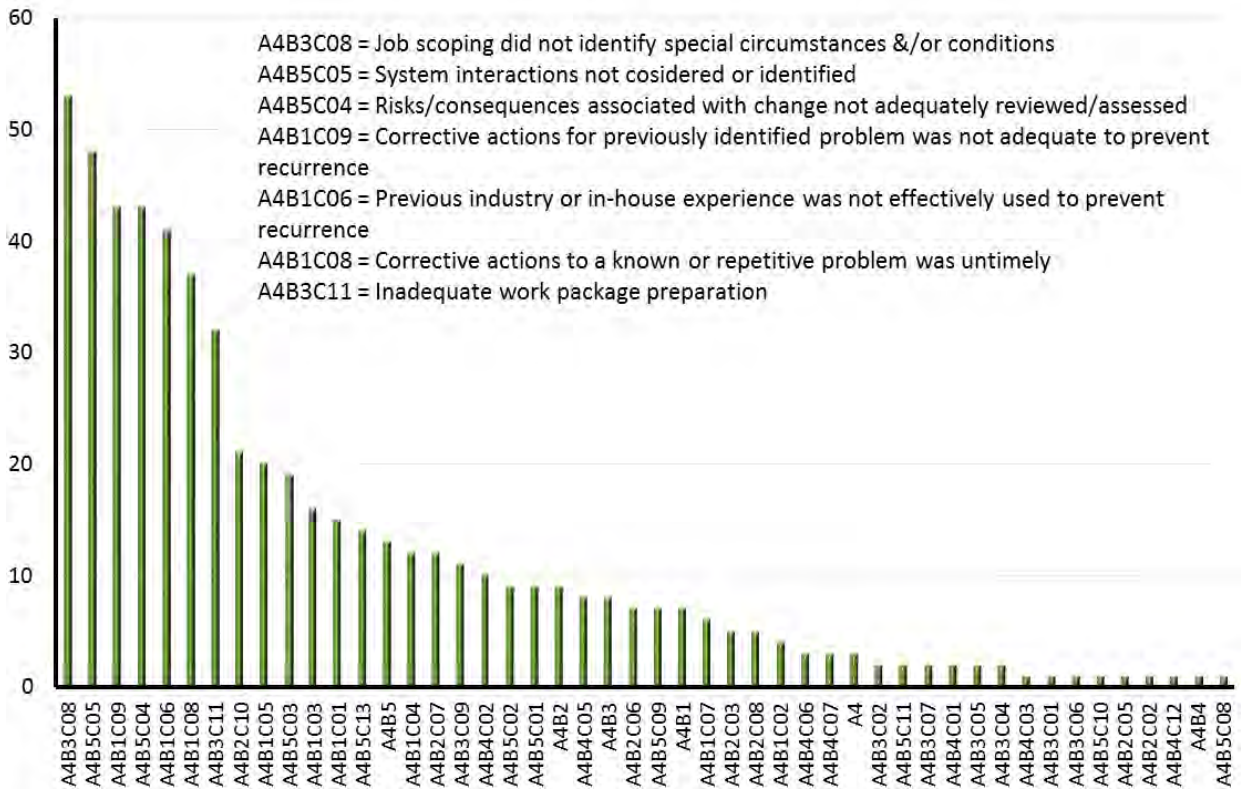



**Figure G.6: Management or Organization Challenges Contributing to an Event**

# Major Initiatives in Event Analysis

## Human Performance

EA has identified work force capability and HP challenges as possible threats to reliability. HP and a skilled workforce was also identified as a priority by the RISC. Workforce capability and HP is a broad topic but can be divided into management, team, and individual levels. NERC held its sixth annual HP conference in Atlanta, Improving Human Performance and Increasing Reliability on the BPS, at the end of March 2017.[212] Equipment Failure Modes and Mechanisms were introduced as a new topic for cause analysis training in 2017.

NERC continues to conduct cause analysis training with staff from the Regions and registered entities. As of December 2017, personnel from all eight Regions, and approximately 1,403 people (1,476 class students, if you don't eliminate duplicates, where a person has attended more than once) from 322 different registered entities have received cause analysis training, roughly 11,000 hours of training.

NERC hosted its fifth annual Monitoring and Situational Awareness Conference on October 3–4, 2017, at the Georgia Power Company Corporate Headquarters in Atlanta, GA. The conference brought together more than 120 operations and EMS experts from registered entities, government regulators, and a variety of vendors and consultants from all Regions and Canada. The focus was on energy management systems quality, including modeling and real-time assessments. William Ball, chief transmission officer and executive vice president of Southern Company, delivered the keynote presentation and spoke on the importance of continued development of elegant EMS tools and systems with built-in security and resiliency to face the challenges of the future. Conference highlights include a presentation

[212] HP Conference information can be found at the following location: http://www.nerc.com/pa/rrm/hp/Pages/default.aspx

AMERICAN OVERSIGHT

on the Modeling and Real-Time Assessment Tool, a presentation of lessons learned from recent EMS outages, and several panel discussions led by industry experts and EMS vendors. The conference presentations are available on the NERC website.[213]

### 2017–2018 Winter Weather Review

NERC scheduled and recorded a Winter Preparation for Severe Weather Events webinar originally scheduled for September 7, 2017. Due to the large number of entities impacted by Hurricanes Harvey and Irma, the webinar was postponed to support continuing recovery efforts. The presentation and recorded streaming webinar were turned into a multimedia presentation and posted on the NERC website to allow industry stakeholders to review the webinar at their convenience.[214]

The Winter Preparation for Severe Weather Events webinar provided the industry reports and material in preparation for the upcoming for Winter 2017–2018. The objective of the webinar was to remind industry of the need to continue to appropriately prepare for the upcoming winter weather forecasts. The webinar highlighted the recently revised *Reliability Guideline: Generating Unit Winter Weather Readiness* that was approved by the OC and posted on Reliability Guideline webpage.[215] Information was shared from 2017–2018 Winter Reliability Assessment. The winter preparation materials can be found on NERC's website.[216]

### 2017 Lessons Learned

Sometimes events of interest do not qualify for the EA Process Category 1–5 classification. Some non-qualifying occurrences were used in generating two significant lessons learned in 2017:

- *Loss of Wind Turbines due to Transient Voltage Disturbances on the Bulk Transmission System:*[217] reviewed a significant event from South Australia and examined some similar events in Texas for common issues and lessons learned.
- *Dispatched Reduction in Generation Output Causes Frequency Deviation:*[218] discusses an event in which marketing software drove generation down significantly, requiring operator intervention.

## Hurricane Harvey

Hurricane Harvey made landfall as Category 4 hurricane on August 25, 2017, at 10:00 pm Central Daylight Time (CDT), with winds in excess of 130 MPH and record-breaking storm surge. The storm inflicted massive disruptions on the electric power system in Corpus Christi, Houston/Galveston, and Beaumont/Port Arthur areas of Texas. As Harvey moved inland, the storm stalled, causing excessive rain (40–50 inches) in parts of southeastern Texas, flooding large areas of Houston and inland as far as Austin.

[213] Conference presentations can be found at the following location: http://www.nerc.com/pa/rrm/Resources/Pages/Conferences-and-Workshops.aspx

[214] The webinar presentation can be found at the following location: https://www.nerc.com/pa/rrm/Webinars%20DL/NERC_Winter_Prep_Webinar_20170907.pdf; for more training and outreach videos on this and similar topics, see https://www.nerc.com/pa/rrm/Pages/Webinars.aspx

[215] The reliability guideline can be found at the following location: https://www.nerc.com/comm/Pages/Reliability-and-Security-Guidelines.aspx

[216] The Cold Weather Training Materials can be found at the following location: http://www.nerc.com/pa/rrm/ea/Pages/Cold-Weather-Training-Materials.aspx

[217] The lesson learned can be found at the following location: http://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20170701_Loss_of_Wind_Turbines_due_to_Transient_Voltage_Disturbances.pdf

[218] The lesson learned can be found at the following location: http://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20170401_Dispatched_Reduction_in_Generation_Output_Causes_Frequency_Deviation.pdf



AMERICAN OVERSIGHT
EXT-18-2615-C-000223

Preparation for the storm included the continual monitoring weather developments and the ongoing communications, including the exchanging of projections between NERC REs, Independent System Operators (ISOs), and the potentially affected registered entities. Lines and generators on maintenance were returned to service. Unit commitment and generator dispatch decisions were made to posture the system to withstand the impact of the storm and recover promptly afterward. Equipment status and capabilities were confirmed. TOs and Transmission Operators (TOPs) reported several local load networks were preemptively shut down in a controlled fashion to prevent damage to equipment and speed restoration. GOs reported that fossil-fueled and wind generating units in the path of the storm were shut down or evacuated.

Hundreds of high-voltage transmission lines, including seven 345-kV lines and more than 200 138-kV and 69-kV lines experienced storm-related forced outages. Most of these transmission facilities were located in the immediate area along the Gulf Coast of Texas where the hurricane made landfall, but some were in the Houston area, where transmission facilities were damaged by flooding.

Wind turbines are commonly shut off at wind speeds of about 55 MPH and higher to protect them from damage, and several turbines in ERCOT's coastal area were shut off while high winds from the storm passed. ERCOT's southern area saw increased levels of wind generation during the four days after landfall when wind speeds were relatively high but below 55 MPH.

The recovery effort was initiated by the transmission, distribution, and generation asset owners when it was safe for crews to enter the impacted areas. The initial recovery consisted of inspections and asset assessments. The equipment owners' initial assessments were greatly hampered by flooding and the unavailability of roads. The priority, as communicated by the utilities, was to the restore transmission assets to generating facilities needed for distribution load recovery. While there was sufficient generation capacity available to meet the load as restoration progressed, there were some cases where customer restoration was hindered by local area transmission outages. This includes instances in which substations were so severely damaged that they did not allow power to be delivered to the distribution system.

Most entities returned 95 percent or more of their customers to service between August 26, 2017, and September 2, 2017. Due to flooding in Houston, one of the hardest hit areas, power restoration was not completed until September 8, 2017.

The extensive, and longer-than anticipated, flooding and storm debris presented many challenges to the recovery process. Utilities overcame these issues by using approaches that have not been used in previous weather-related events:

- Unmanned aerial drones were used to perform damage assessments on inaccessible transmission and distribution lines
- Amphibious vehicles and airboats were used to access flooded areas

The following good industry practices were identified for Hurricane Harvey:

- Pre-staging of equipment outside of flood-prone areas made the restoration process more effective.
- Collaborative efforts with other Texas utilities, ERCOT, and regional mutual assistance groups worked well during this event. It is important to touch base with contract resources and adjacent utilities prior to the storm event to establish communication chains.
- Establishment of contacts with State and Local Emergency Management coordinators and key stakeholders was key in maintaining continuity and prioritization of the recovery effort.

AMERICAN OVERSIGHT

EXT-18-2615-C-000224

- Use of advanced meters and intelligent grid devices was effective to pinpoint outages, operate equipment remotely, and increase efficiency.
- Use of Facebook, Twitter, Power Alert Service, and text messages was effective in keeping customers informed.
- Use of utility-directed aerial drones were effective to assess damage, evaluate work conditions, and enable real-time situational awareness. Infrared capabilities helped identify equipment that needed further inspection.
- Preventive actions taken, such as pausing wind turbines prior to experiencing high wind cut-out speeds helped avoid individual turbine faults, stop yawing, and allow the turbines to continuously pitch into the wind as long as possible.
- The use of detailed pictures of transmission structures facilitated a rapid design response allowing materials to be marshalled and a high-level scope developed to mobilize construction resources.
- ERCOT's Forced Outage Detector application was instrumental in helping operators and support engineers identify undocumented outages.
- ERCOT's Grid Applications Support Operations Engineers were able to utilize the State Estimator Statistical application to quickly identify MW/MVAR mismatches and topology issues.
- Having on-site Engineering Support from the Advanced Network Analysis and Operations Support departments ensured quick evaluations of issues with ERCOT applications.

## Hurricane Irma

Hurricane Irma made initial landfall in the United States on Cudjoe Key (20 miles north of Key West) in the Florida Keys at 9:34 am EST on September 10, 2017, as a Category 4 storm with sustained winds of 130 mph. Later that same day Irma weakened to a Category 3 storm with sustained winds of 115 mph and made a second landfall near Marco Island in southwest Florida at 3:35 pm EDT. Irma moved quickly northward, just inland from the west coast of Florida on September 10 and 11. As Irma hit Florida, tropical storm force winds extended outward up to 400 miles from the center, and hurricane force winds extended up to 80 miles. Hurricane force wind gusts (i.e., 74 mph or more) were reported along much of the east coast of Florida, from Jacksonville to Miami. In addition to the prolonged periods of heavy rain and strong winds, storm surge flooding also occurred well away from the storm center, including the Jacksonville area, where strong and persistent onshore winds had been occurring for days before Irma's center made its closest approach.

When Hurricane Irma reached northwest Florida (on the morning of September 11), the wind gusts were generally in the 45 to 60 mph range. Dry southwest winds made the storm system irregular and conditions improved rapidly once the storm center passed over Florida. Irma weakened to a tropical storm in south Georgia in the afternoon of September 11 and was downgraded to a tropical depression while moving north across central Georgia in the evening.

As Hurricane Irma approached Florida, NERC, REs, and the potentially affected registered entities continually monitored weather developments and exchanged information. Prior to the storm's landfall the RC initiated daily calls with the TOPs and BAs in the FRCC Region. The TOPs and BAs reported that the lines and generators that were previously shut down for maintenance were returned to service. The BAs reported that several generating units (approximately 2,500 MW) were placed into preemptive shutdown condition to further protect assets from long-term damage due the high winds and the predicted storm surge.

Over 100 high-voltage transmission lines, including one 500 kV line, a total of 48 230 kV lines and 69 138 kV lines and 115 kV lines experienced storm-related forced outages. Several transmission lines (two 500 kV lines and five 230 kV

AMERICAN OVERSIGHT

EXT-18-2615-C-000225

Lines) were shut down in a controlled fashion to address high voltage conditions. Numerous generation facilities (approximately 6,500 MW) were shut down in a controlled fashion to minimize storm related damage. A total of 3,355 MW of generation experienced storm-related forced outages, primarily from high winds, sustained storm surges, and as a result of transmission line forced outages. Customer outages exceeded six million.

The recovery effort was initiated by the transmission, distribution, and generation registered entities. The initial recovery consisted of inspections and asset assessments. The registered entities initial assessments were greatly hampered by storm surge, storm damage, and the lack of accessibility into deep right-of-ways due to localized flooding and storm debris. The priority, as communicated by the RC and the TOPs, was to the restore transmission assets to generating facilities needed for distribution load recovery. While there was sufficient generation capacity available to meet the load as restoration progressed, there were some cases where customer restoration was hindered by local area transmission and distribution outages.

Most entities returned 95 percent of their customers to service between September 12 and 15, 2017. Areas along the southern and eastern coastlines, which were the areas experiencing the largest sustained storm surges, reported having prolonged restoration times beyond September 15, 2017.

Due to the unprecedented number of pole-mounted distribution transformers damaged, mutual aid and other non-conventional means were utilized to acquire enough units to complete restoration. Additionally, the extensive, and longer-than anticipated, storm surge along with storm debris presented many challenges to the recovery process.

The registered entities overcame these issues by using approaches that have not been used in previous weather-related events occurring in the Region:

- Unmanned aerial drones were used to perform damage assessments on inaccessible transmission and distribution lines.
- Amphibious vehicles and airboats were used to access flooded areas.
- Innovative Damage Assessment Process utilizing a mobile application in which damage can be reported: sent back to the office (automatically creating a map) and then issued to line workers in real time.

The following good industry practices were identified for Hurricane Irma:

- Pre-staging of equipment outside of hurricane's projected path made the restoration process more effective.
- Preemptively removing generation prior to the hurricane making landfall protected equipment from damage and significantly shortened restoration times.
- Continuous communications between the RC, TOPs, and BAs in the FRCC Region ensured coordinated efforts throughout the event and the subsequent restoration.
- Advanced meters and intelligent grid devices were effective to pinpoint outages, operate equipment remotely, and increase efficiency.
- Installation of flood monitors in substations located within the 100 year flood plain resulted in the ability to de-energize substations at notification of rising water and avoiding catastrophic damage to sensitive station equipment.
- Leveraging social media enabled first ever communications with Facebook live and other platforms providing customers with the most current outage and restoration information.
- Aerial drones were effective to assess damage, evaluate work conditions, and enable real-time situational awareness. Infrared capabilities helped identify equipment that needed further inspection.

AMERICAN OVERSIGHT

EXT-18-2615-C-000226

- Hardening and resiliency programs implemented prior to the hurricane significantly reduced the storm damage sustained due to high winds and storm surge.

## Summary

The EA Process continues to provide valuable information for the industry to address potential threats or vulnerabilities to the reliability of the BPS. The ability to identify specific pieces of equipment that are potential threats as well as emerging trends that increase risk to the system illustrates the value of the EA Process. These outcomes, coupled with the ability to actively share the information through lessons learned, webinars, technical conferences, and related venues, remain critical to the sustainment of high reliability.

AMERICAN OVERSIGHT



EXT-18-2615-C-000227

# Appendix H: Abbreviations Used in this Report

| Table H.1: Abbreviations Used in this Report | |
|---|---|
| **Abbreviation/Acronym** | **Name** |
| ACSETF | AC Substation Equipment Task Force |
| ALR | Adequate Level of Reliability |
| APT | advanced persistent threat |
| BA | Balancing Authority |
| BES | Bulk Electric System |
| Board | Board of Trustees |
| BPS | bulk power system |
| CAP | Corrective Action Plan |
| CDM | common or dependent mode |
| CIP | Critical Infrastructure Protection |
| CIPC | Critical Infrastructure Protection Committee |
| CMEP | Compliance Monitoring and Enforcement Program |
| CP | Compliance Process |
| CRISP | Cyber Security Risk Information Sharing Program |
| DADS | Demand Availability Data System |
| DADSWG | Demand Availability Data System Working Group |
| DCS | disturbance control standard |
| DGL | daily generation loss |
| DHS | Department of Homeland Security |
| DOE | Department of Energy |
| DRI | data reporting instruction |
| DTL | daily transmission loss |
| EEA | Energy Emergency Alert |
| EACMS | Electronic Access Control or Monitoring Systems |
| EI | Eastern Interconnection |
| E-ISAC | Electricity Information Sharing and Analysis Center |
| ERO | Electric Reliability Organization |
| ERS | essential reliability services |
| FBI | Federal Bureau of Investigation |
| FERC | Federal Energy Regulatory Commission |
| FMM | Failure Modes and Mechanisms |
| FP&L | Florida Power & Light |
| FPSC | Florida Public Service Commission |
| GADS | Generation Availability Data System |
| GO | Generator Owner |
| HE | Hour Ending |
| HP | Human Performance |
| Hz | hertz |
| ICC | initiating cause codes |

AMERICAN OVERSIGHT



EXT-18-2615-C-000228

| Table H.1: Abbreviations Used in this Report | |
|---|---|
| **Abbreviation/Acronym** | **Name** |
| IFRM | Interconnection Frequency Response Performance Measure |
| IFRO | interconnection frequency response obligation |
| IROL | Interconnection Reliability Operating Limit |
| IRPTF | Inverter-based Resource Performance Task Force |
| JAR | Joint Analysis Report |
| mHz | mega hertz |
| MIDAS | Misoperations Information Data Analysis System |
| MSSC | most severe single contingency |
| MVA | megavolt ampere |
| MW | megawatt |
| NAGF | North American Generator Forum |
| NATF | North American Transmission Forum |
| NERC | North American Electric Reliability Corporation |
| OC | Operating Committee |
| PAS | Performance Analysis Subcommittee |
| PC | Planning Committee |
| PCS | Protection and Controls Subcommittee |
| PV | photovoltaic |
| QI | Quebec Interconnection |
| RAS | remedial action scheme |
| RC | Reliability Coordinator |
| RCC | Resource Contingency Criteria |
| RE | Regional Entity |
| RS | Resources Subcommittee |
| RSG | reserve sharing group |
| RWG | Reserves Working Group |
| SAMS | Systems Analysis and Modeling Subcommittee |
| SAR | Standard Authorization Request |
| SC | Standards Committee |
| SCC | sustained cause codes |
| SIS | Safety Instrumented Systems |
| SMB | Server Message Blok |
| SOL | System Operating Limit |
| SOR | State of Reliability |
| SPCS | System Protection Control Subcommittee |
| SPS | special protection systems |
| SPWG | System Protection Working Group |
| SRI | Severity Risk Index |
| SWMG | Security Metrics Working Group |
| TADS | Transmission Availability Data System |
| TADSWG | Transmission Availability Data System Working Group |

AMERICAN OVERSIGHT



EXT-18-2615-C-000229

| Table H.1: Abbreviations Used in this Report | |
|---|---|
| **Abbreviation/Acronym** | **Name** |
| TI | Texas Interconnection |
| TLP | Threat Level Protocol |
| TOP | Transmission Operators |
| TOS | Transmission Outage Severity |
| TO | Transmission Owner |
| UFLS | under-frequency load shed |
| WEFOR | weighted equivalent forced outage rate |
| WI | Western Interconnection |

AMERICAN OVERSIGHT



EXT-18-2615-C-000230

# Appendix I: Contributions

NERC would like to express its appreciation to the many people who provided technical support and identified areas for improvement.

| Table I.1: NERC Industry Group Acknowledgements | |
|---|---|
| **Group** | **Officers** |
| Planning Committee | Chair: Brian Evans-Mongeon, Utility Services, Inc.<br>Vice Chair: Noman Williams, GridLiance |
| Operating Committee | Chair: Lloyd Linke, WAPA<br>Vice Chair: David Zwergel, MISO |
| Critical Infrastructure Protection Committee | Chair: Marc Child, Great River Energy<br>Vice Chair: David Revill, GTC<br>Vice Chair: David Grubbs, City of Garland |
| Bulk Electric System Security Metrics Working Group | Chair: Larry Bugh, Reliability*First* |
| Performance Analysis Subcommittee | Chair: Paul Kure, Reliability*First*<br>Vice Chair: Maggie Peacock, WECC |
| Demand Response Availability Data System Working Group | James McAnany, PJM |
| Events Analysis Subcommittee | Chair: Rich Hydzik, Avista Corporation<br>Vice Chair: Vinit Gupta, ITC |
| Generation Availability Data System Working Group | Chair: Leeth DePriest, Southern Company<br>Vice Chair: Steve Wenke, Avista Corporation<br>Additional Support: Ron Fluegge, GADSOS |
| Transmission Availability Data System Working Group | Chair: Kurt Weisman, ATC<br>Vice Chair: Brian Starling, Dominion |
| Resources Subcommittee | Chair: Tom Pruitt, Duke Energy<br>Vice Chair: Sandip Sharma, ERCOT |
| Operating Reliability Subcommittee | Chair: Dave Devereaux, IESO<br>Vice Chair: Chris Pilong, PJM |
| Frequency Working Group | Chair: Danielle Croop, PJM |
| Reliability Assessment Subcommittee | Chair: Tim Fryfogle, Reliability First<br>Vice Chair: Lewis DeLarosa, Texas RE |
| System Protection and Control Subcommittee | Chair: Mark Gutzmann, Xcel Energy<br>Vice Chair: Jeff Iler, AEP |
| Compliance and Certification Committee | Chair: Patricia E. Metro, NRECA<br>Vice Chair: Jennifer Flandermeyer, KCP&L |

| Table I.2: NERC Staff | |
|---|---|
| **Name** | **Title** |
| Mark Lauby | Senior Vice President and Chief Reliability Officer |
| James Merlo | Vice President and Director, Reliability Risk Management |
| David Till | Senior Manager, Performance Analysis |
| Brad Gordon | Manager, Performance Analysis, Balancing and Frequency Control |
| Svetlana Ekisheva | Senior Manager, Statistical Analysis and Outreach |
| Jack Norris | Engineer, Performance Analysis |

AMERICAN OVERSIGHT



EXT-18-2615-C-000231

| Table I.2: NERC Staff | |
|---|---|
| **Name** | **Title** |
| Margaret Pate | Reliability Risk Control Liaison, Performance Analysis |
| Donna Pratt | Manager, Performance Analysis, Data Analytics |
| Elsa Prince | Principal Advisor, Performance Analysis |
| Lee Thaubald | Technical Analyst, Performance Analysis |
| Matthew Varghese | Senior Engineer, Performance Analysis |
| Rich Bauer | Associate Director, Event Analysis |
| Laura Brown | Director, Programs and Engagement |
| Terry Campbell | Manager of Technical Publications |
| Alex Carlson | Senior Technical Publications Specialist |
| Sam Chanoski | Director, Threat Intelligence and Countermeasures |
| Thomas Coleman | Director, Reliability Assessments |
| Bob Cummings | Senior Director, Engineering and Reliability Initiatives |
| Howard Gugel | Senior Director, Standards |
| Aaron Hornick | Senior Enforcement Analyst, Enforcement |
| Ed Kichline | Senior Counsel and Director of Enforcement |
| Mani Mardhekar | Senior Engineer, Bulk Power System Awareness |
| Kimberly Mielcarek | Senior Director of Communications |
| John Moura | Director of Reliability Assessment and Systems Analysis |
| Steve Noess | Director of Compliance Assurance and Program Oversight |
| Ryan Quint | Senior Manager, System Analysis |
| Janet Sena | Senior Vice-President, Policy and External Affairs |
| Sandy Shiflett | Senior Program Specialist |
| Jule Tate | Associate Director, Events Analysis |
| Ganesh Velummylum | Senior Manager, System Analysis |
| Warren Wu | Senior Engineer of Balancing Operations and Analysis |

AMERICAN OVERSIGHT



EXT-18-2615-C-000232

| | |
|---|---|
| **From:** | Travis Fisher |
| **To:** | Angela Amos; Laura Swett |
| **Subject:** | FW: State of Reliability 2018 |
| **Date:** | Wednesday, June 20, 2018 2:37:00 PM |
| **Attachments:** | NERC_2018_SOR_06202018_Final.pdf |

Just making sure you both saw this.

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Wednesday, June 20, 2018 11:32 AM
**To:** Fritz Hirst <Fritz.Hirst@nerc.net>
**Subject:** State of Reliability 2018

Attached is NERC's State of Reliability 2018. The report is embargoed until 11 a.m. tomorrow. We look forward to discussing the report with you, and to further discussion at the July 31 Reliability Technical Conference. Best- Fritz

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6)
fritz.hirst@nerc.net
**Reliability | Accountability**

This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.

AMERICAN OVERSIGHT

| | |
|---|---|
| **From:** | Travis Fisher |
| **To:** | Carolyn Clarkin; Nicholas Gladd; Laura Swett; Angela Amos |
| **Cc:** | Anthony Pugliese; Martin Kirkwood |
| **Subject:** | FW: State of Reliability Report |
| **Date:** | Tuesday, June 19, 2018 5:11:00 PM |

(b) (5) [redacted]

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Tuesday, June 19, 2018 1:09 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: State of Reliability Report

Thanks. Three of us total. 30 minutes should do. We can hang as long as you'd like.

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6) [redacted]
fritz.hirst@nerc.net
**Reliability | Accountability**

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, June 19, 2018 12:44 PM
**To:** Fritz Hirst <Fritz.Hirst@nerc.net>
**Subject:** RE: State of Reliability Report

Sure thing. How many folks are you bringing total? And for 30 minutes or 60? I'll reserve a space.

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Tuesday, June 19, 2018 11:52 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: State of Reliability Report

Hey no worries at all. We're with Commissioner Glick's staff from 4-4:30 on Thursday. Can you do 4:30?

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6) [redacted]
fritz.hirst@nerc.net

AMERICAN OVERSIGHT

**Reliability | Accountability**

---

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, June 19, 2018 11:12 AM
**To:** Fritz Hirst <Fritz.Hirst@nerc.net>
**Subject:** RE: State of Reliability Report

Hey Fritz, sorry for the late reply—I'm still getting caught up on emails from when I was out.

I'd love to meet James while he's in town. I could do tomorrow at 10am or Thursday on the later side, as you suggested. Let me know if either of those times still work for you.

Hope you're doing well!

---

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Friday, June 15, 2018 3:33 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: State of Reliability Report

Hey Travis- Wanted to double back on this since you've been out. Thanks. -Fritz


_____
**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6)
fritz.hirst@nerc.net
**Reliability | Accountability**


---

**From:** Fritz Hirst
**Sent:** Friday, June 08, 2018 11:35 AM
**To:** 'travis.fisher@ferc.gov' <travis.fisher@ferc.gov>
**Subject:** State of Reliability Report

Hey Travis- State of Reliability 2018 will be released on June 21. This is our annual report assessing performance of the BPS over the previous year, identifying trends and risks. James Merlo, NERC's Vice President of Reliability Risk Management, will be in town for the release and we'd like to try to visit with you for a briefing. We have our quarterly meeting the OER staff on the 21st. It ends by 3:30. Wondering if you might have time after that? We could also do Wednesday the 20th between 10 a.m. and 1 p.m. Thanks. -Fritz


_____
**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6)


AMERICAN OVERSIGHT

fritz.hirst@nerc.net
**Reliability | Accountability**

This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.

Warning: This email comes from an external sender. Be cautious when opening URLs or attachments from external senders.

Warning: This email comes from an external sender. Be cautious when opening URLs or attachments from external senders.

AMERICAN OVERSIGHT

**From:** (b) (6)
**To:** Commissioners" Assistants
**Cc:** Martin Kirkwood; Anna Cochrane; (b) (6) ; James Danly; David Morenoff; (b) (6) ; David Ortiz; Joseph McClelland; (b) (6) l; Anne Marie Hirschberger; (b) (6) ; Travis Fisher
**Subject:** Grid Resilience Industry Comment Summary
**Date:** Friday, June 08, 2018 1:00:58 PM
**Attachments:** (b) (5)

---

Dear Commissioners' Assistants,

Please find attached a summary (b) (5)

Thanks, and let us know if we can clarify anything

(b) (6)

(for the Grid Resilience Team)

AMERICAN OVERSIGHT

# DOCUMENT 17

**From:** Eduardo Ribas
**To:** FERC-HQ
**Subject:** Hurry! Only a Few Seats Left for WEW"s Workshop, "Resilience: The Key to a successful career" (Thursday, June 7, 2018)
**Date:** Wednesday, June 06, 2018 9:04:56 AM
**Attachments:** image001.png

Re: **WEW Event: **Workshop** on **"Resilience: The Key to a successful career"** – Registration Link included below.

**This Week's Resilience Workshop is open to all Commission employees!** Seats are limited.

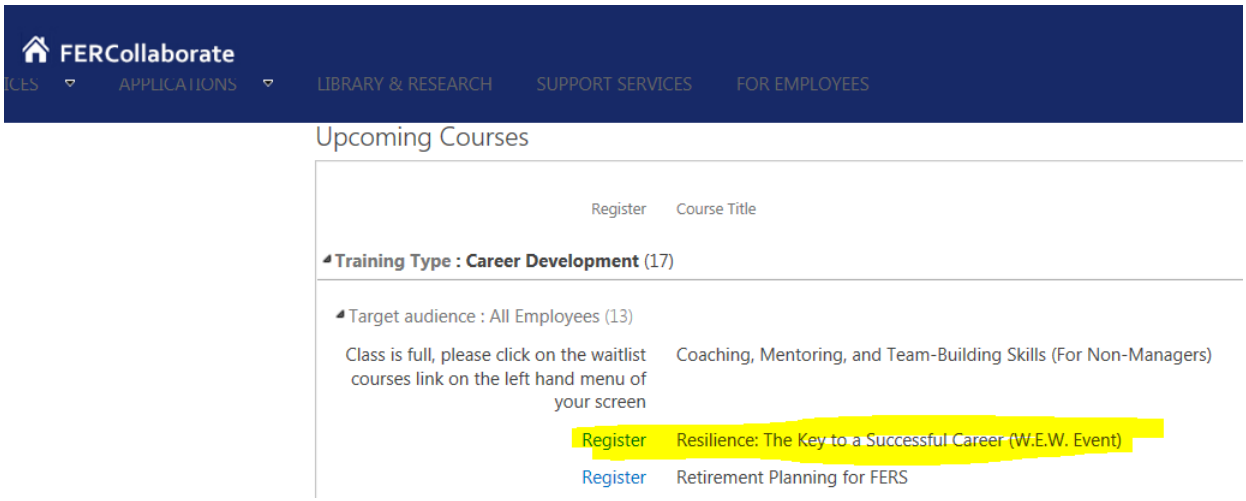
Included below is the *registration link for the Women emPOWERing Women (WEW) ERG's* upcoming workshop, "Resilience: The Key to a Successful Career" on Thursday, June 7, 2018 (9 am to 4 pm in Room 3M-4A&B). The attached file contains the description of the workshop. Earlier, priority registration was opened up to the WEW members. Now, this workshop registration is opened up to all Commission employees.

The following registration link will take you to the FERC Collaborate page, "Upcoming Courses." Scroll down, and click on the "Resilience *" workshop title to register. (see snip tool image copied below for a quick reference)
https://ws.sp.ferc.gov/training/SitePages/Home.aspx#

If you need to cancel your registration at a later date, please cancel the registration as soon as you know of your scheduled conflict, so others can make use of the opened up spot. Thanks to OED for sponsoring this workshop!

*Please direct all questions regarding this Workshop to wew@ferc.gov.*

Thank you!




AMERICAN OVERSIGHT

**DOCUMENT 18**

**From:** (b) (6)
**To:** Commissioners" Assistants
**Cc:** (b) (6) ; Lawrence Greenfield; (b) (6)
**Subject:** ISO-NE Mystic Waiver Memo; ER18-1509
**Date:** Tuesday, June 12, 2018 4:02:37 PM
**Attachments:** (b) (5)

---

Dear Commissioners' Assistants,

Attached is a memo (b) (5)

(b) (5)

(b) (6)

AMERICAN OVERSIGHT

**DOCUMENT 19**

**From:** (b) (6)
**To:** Commissioners" Assistants
**Cc:** (b) (6)
**Subject:** Major Issues Memo ER18-1314 PJM Capacity Repricing and MOPR-Ex
**Date:** Monday, June 11, 2018 2:39:41 PM
**Attachments:** (b) (5)

---

Dear Commissioners' Assistants,

(b) (5)

Thank you,
(b) (6)

AMERICAN OVERSIGHT

*FOR IMMEDIATE RELEASE*

**PJM Statement on Potential Department of Energy Market Intervention**

(Valley Forge, Pa. – June 1, 2018)

PJM has not received any official document from the Department of Energy.

Our analysis of the recently announced planned deactivations of certain nuclear plants has determined that there is no immediate threat to system reliability. Markets have helped to establish a reliable grid with historically low prices. Any federal intervention in the market to order customers to buy electricity from specific power plants would be damaging to the markets and therefore costly to consumers.

There is no need for any such drastic action. PJM just released the results of its capacity auction, which secured reliable supplies through 2021/2022. The auction results saw an increase in the amount of coal resources that cleared the market, along with a diverse mix of natural gas generation, nuclear generation, renewable resources, demand response and energy efficiency.

The PJM electrical grid is more reliable than ever, with 23 percent reserve margins and billions of dollars of new investment. All of this is occurring while emissions are decreasing and wholesale prices are at historic lows for the 65 million consumers we serve. From 2008 to 2017, wholesale prices in PJM fell by more than 40 percent. Competition has required generators to operate more efficiently while also attracting new, more efficient technology, resulting in more than $1.4 billion in annual savings.

We have acknowledged the concerns raised by officials and regulators about the long-term resilience of the grid and we are embarking on a fuel security initiative that we announced just a few weeks ago. Our goal with that initiative is to ensure that the already reliable electric grid will continue to remain both reliable and resilient for years into the future without the need for government intervention in the marketplace.

*PJM Interconnection, founded in 1927, ensures the reliability of the high-voltage electric power system serving 65 million people in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. PJM coordinates and directs the operation of the region's transmission grid, which includes over 84,042 miles of transmission lines; administers a competitive wholesale electricity market; and plans regional transmission expansion improvements to maintain grid reliability and relieve congestion. PJM's regional grid and market operations produce annual savings of $2.8 billion to $3.1 billion. For the latest news about PJM, visit PJM Inside Lines at insidelines.pjm.com.*

###

| | |
|---|---|
| **From:** | Glazer, Craig |
| **To:** | Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anna Cochrane; Anthony Pugliese; Anton Porter; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Brett Rendina; [redacted] Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; [redacted]; David Morenoff; David Ortiz; Elizabeth Salerno; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; [redacted]; [redacted]; Jessica Cockrell; Jette Gebhart; Jignasa Gadani; John Shepherd; [redacted]; Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kimberly Bose; Kris Fitzpatrick; [redacted]; Larry Parkinson; LaShawn Dickens; Laura Swett; Leonard Tao; Leslie Kerr; Lindsee Gentry; Matthew Christiansen; Meghan Estenson; Michael P. McLaughlin; Michelle R. Brown; Mindi Sauter; Neil Chatterjee; Nicholas Gladd; Nils Nichols; Pamela Quinlan; Patricia Smith; Peter Rolashevich; Rich Glick; Rikardo Hull; Robert F. Powelson; Robert Ross; Steven Wellner; Tracy Adamsky; Travis Fisher |
| **Subject:** | PJM Statement Issued Today on Potential DOE Action |
| **Date:** | Friday, June 01, 2018 1:55:41 PM |
| **Attachments:** | 20180601_PJM Statement on potential DOE market intervention.pdf |

Here's a statement we posted to our website a few moments ago relative to the potential DOE action.

**CRAIG GLAZER**
Vice President-Federal Government Policy
PJM Interconnection, LLC—D.C. Office

Suite 600
1200 G Street, N.W.
Washington, D.C. 20005
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

June 5, 2018

News Media Contact

Mary O'Driscoll | 202-502-8680

Docket No.: AD06-6-000

# FERC, NRC Commissioners to Hold Joint Meeting on June 7

Commissioners and staff from the Federal Energy Regulatory Commission (FERC) and the Nuclear Regulatory Commission (NRC) will hold a joint meeting at FERC headquarters on June 7 to discuss reliability and resilience of the bulk power system, as well as other issues of mutual concern to the agencies. In addition, representatives of the North American Electric Reliability Corporation (NERC) will attend and participate in this meeting.

In a public session beginning at 9 a.m., NERC will provide a presentation on the State of Reliability. Staff from the two agencies will give presentations on a number of topics, including FERC's Grid Resilience Proceeding (AD18-7-000), the FERC-NERC Regional Entity Joint Review of Restoration and Recovery Plans, nuclear power plant operations, and physical and cybersecurity of the grid. The format for the meeting calls for discussions between the two sets of Commissioners following the presentations.

At the conclusion of the public meeting, the two Commissions will go into closed session.

The meeting will be in the Commission Meeting Room at FERC's headquarters located at 888 First St., NE, in Washington, D.C. A free webcast will be available at http://ferc.capitolconnection.org/ and a transcript will be made. The final agenda and staff presentations from the open session will be posted under the joint meeting's listing in the FERC Calendar of Events at www.ferc.gov.

R-18-18

(30)

AMERICAN OVERSIGHT

**From:** (b) (6)
**To:** Kevin McIntyre; Cheryl LaFleur; Neil Chatterjee; Robert F. Powelson; Rich Glick
**Cc:** Commissioners" Assistants; Leonard Tao; Anthony Pugliese; Mary O"Driscoll
**Subject:** Posting to What"s New
**Date:** Tuesday, June 05, 2018 7:20:42 AM
**Attachments:** FERC-NRC-news-release.pdf

---

All,

We are posting this news release on the FERC-NRC meeting to the FERC.gov home page under "What's New" in a few minutes and I will send it to our social media links shortly.

Thank you.(b) (6)

(b) (6) | Public Affairs Specialist | Webmaster | 202 502 6148

Federal Energy Regulatory Commission
Office of External Affairs | Media Relations Division | Rm 11H-28

AMERICAN OVERSIGHT

**From:** Zack Colman
**To:** Travis Fisher
**Cc:** Mary O"Driscoll
**Subject:** RE: DPA
**Date:** Tuesday, June 05, 2018 3:59:15 PM

---

Thanks, Travis. Totally understand. Mary – nice to connect with you. Just wondering if you had any sense of some of the major differences between the affected entities with respect to 202 & DPA.

Thanks,
Zack

--
Zack Colman
E&E News
White House correspondent
c: (b) (6)
o: 202-446-0408
twitter: @zcolman

---

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, June 05, 2018 3:57 PM
**To:** Zack Colman <zcolman@eenews.net>
**Cc:** Mary O'Driscoll <mary.odriscoll@ferc.gov>
**Subject:** RE: DPA

Hi Zack,

I don't have any insight beyond what Mary (copied) would share, and I don't think we are speculating about the leaked draft memo from DOE.

Sorry I can't be of more help. Hope you're doing well.

Best,
Travis

---

**From:** Zack Colman [mailto:zcolman@eenews.net]
**Sent:** Tuesday, June 05, 2018 3:40 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** DPA

Hey Travis,

Zack Colman here with E&E News. Hope this finds you well. Was wondering whether you had time to chat about some of the broader implications on the DPA idea. I know FERC isn't involved in that, but

AMERICAN OVERSIGHT

was hoping you might be able to help me sort through the differences of implications between the DPA route and that of 202.

Best to get me on my cell at (b) (6)

-Zack

--
Zack Colman
E&E News
White House correspondent
c: (b) (6)
o: 202-446-0408
twitter: @zcolman

AMERICAN OVERSIGHT

**DOCUMENT 25**

**From:** Travis Fisher
**To:** Katherine Hamilton
**Subject:** RE: Meeting with Form Energy?
**Date:** Tuesday, June 19, 2018 12:21:00 PM

Hi Katherine,

I know I'm late to the game on this one—my apologies. I can't do lunch on Thursday (or the morning because it's a Commission Meeting day) but I'm sure I could find some time in the afternoon if you're available. If that doesn't work I'll have to catch you next time.

Best,
Travis

**From:** Katherine Hamilton [mailto:katherine@38northsolutions.com]
**Sent:** Monday, June 11, 2018 9:47 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** Fwd: Meeting with Form Energy?

Travis, happy Monday! Wasn't sure if you saw this note below since I sent to your personal e-mail.

Thanks—
-Katherine

Katherine Hamilton
***38 North Solutions***
(Direct) (b) (6)
(Web) www.38northsolutions.com
(Twitter) @cleangridview
(Podcast) The Energy Gang

Begin forwarded message:

**From:** Katherine Hamilton <katherine@38northsolutions.com>
**Subject: Meeting with Form Energy?**
**Date:** June 7, 2018 at 11:17:48 AM EDT
**To:** Travis Fisher <travis.scott.fisher@gmail.com>

Howdy; hope you are still enjoying your gig at my favorite agency. On June 21 I am bringing in Mateo Jaramillo (designed the Tesla drivetrain and storage system) and Ted Wiley (former Gates-funded Aquion energy CEO) who have a new start-up, Form Energy, which will totally change the game on storage. We are meeting with OEPI at 1 pm. Am wondering if it be worth grabbing a bite

AMERICAN OVERSIGHT

ahead of that at the FERC cafe with you and perhaps a couple of other staff from the Chair's office. The technology they are working on would solve a bunch of the resilience/baseload issues and I want folks to at least be aware that it is coming. Let me know if that works for you.

Thanks!
-Katherine

Katherine Hamilton
***38 North Solutions***
(Direct) 2(b) (6)
(Web) www.38northsolutions.com
(Twitter) @cleangridview
(Podcast) The Energy Gang

AMERICAN OVERSIGHT

**DOCUMENT 26**

| | |
|---|---|
| **From:** | Emma Nicholson |
| **To:** | Travis Fisher |
| **Subject:** | RE: Reminder: Hurry! Only a Few Seats Left: Registration Link for WEW"s Workshop, "Resilience: The Key to a successful career" (Thursday, June 7, 2018) |
| **Date:** | Monday, June 04, 2018 8:18:06 AM |

(b) (6) [redacted]. I'll take notes for you

**From:** Travis Fisher
**Sent:** Monday, June 04, 2018 8:17 AM
**To:** Emma Nicholson <Emma.Nicholson@ferc.gov>
**Subject:** Fwd: Reminder: Hurry! Only a Few Seats Left: Registration Link for WEW's Workshop, "Resilience: The Key to a successful career" (Thursday, June 7, 2018)

(b) (6) [redacted]

Begin forwarded message:

> **From:** Eduardo Ribas <Eduardo.Ribas@ferc.gov>
> **Date:** June 4, 2018 at 7:49:28 AM EDT
> **To:** FERC-HQ <FERC-HQ@ferc.gov>
> **Subject: Reminder: Hurry! Only a Few Seats Left: Registration Link for WEW's Workshop, "Resilience: The Key to a successful career" (Thursday, June 7, 2018)**
>
> Re: **WEW Event: **Workshop** on **"Resilience: The Key to a successful career"** – Registration Link included below.
>
> **This Week's Resilience Workshop is open to all Commission employees!** Seats are limited.
>
> Included below is the *registration link for the Women emPOWERing Women (WEW) ERG's* upcoming workshop, "Resilience: The Key to a Successful Career" on Thursday, June 7, 2018 (9 am to 4 pm in Room 3M-4A&B). The attached file contains the description of the workshop. Earlier, priority registration was opened up to the WEW members. Now, this workshop registration is opened up to all Commission employees.
>
> The following registration link will take you to the FERC Collaborate page, "Upcoming Courses." Scroll down, and click on the "Resilience *" workshop title to register. (see snip tool image copied below for a quick reference)
> https://ws.sp.ferc.gov/training/SitePages/Home.aspx#
>
> If you need to cancel your registration at a later date, please cancel the

AMERICAN OVERSIGHT

registration as soon as you know of your scheduled conflict, so others can make use of the opened up spot. Thanks to OED for sponsoring this workshop!

*Please direct all questions regarding this Workshop to wew@ferc.gov.*

Thank you!

<image001.png>

<OSRES - Resilience - The Key to a Successful Career.pdf>

AMERICAN OVERSIGHT

**From:** Angela Amos
**To:** Travis Fisher
**Subject:** RE: State of Reliability Report
**Date:** Tuesday, June 19, 2018 5:51:32 PM

Thanks, Travis.

Angela

**From:** Travis Fisher
**Sent:** Tuesday, June 19, 2018 5:12 PM
**To:** Carolyn Clarkin <Carolyn.Clarkin@ferc.gov>; Nicholas Gladd <Nicholas.Gladd@ferc.gov>; Laura Swett <Laura.Swett@ferc.gov>; Angela Amos <Angela.Amos@ferc.gov>
**Cc:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>; Martin Kirkwood <Martin.Kirkwood@ferc.gov>
**Subject:** FW: State of Reliability Report

(b) (5) [redacted]

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Tuesday, June 19, 2018 1:09 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: State of Reliability Report

Thanks. Three of us total. 30 minutes should do. We can hang as long as you'd like.

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6) [redacted]
fritz.hirst@nerc.net
**Reliability | Accountability**

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, June 19, 2018 12:44 PM
**To:** Fritz Hirst <Fritz.Hirst@nerc.net>
**Subject:** RE: State of Reliability Report

Sure thing. How many folks are you bringing total? And for 30 minutes or 60? I'll reserve a space.

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Tuesday, June 19, 2018 11:52 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>

AMERICAN OVERSIGHT

**Subject:** RE: State of Reliability Report

Hey no worries at all. We're with Commissioner Glick's staff from 4-4:30 on Thursday. Can you do 4:30?


**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6)
fritz.hirst@nerc.net
**Reliability | Accountability**


---

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, June 19, 2018 11:12 AM
**To:** Fritz Hirst <Fritz.Hirst@nerc.net>
**Subject:** RE: State of Reliability Report

Hey Fritz, sorry for the late reply—I'm still getting caught up on emails from when I was out.

I'd love to meet James while he's in town. I could do tomorrow at 10am or Thursday on the later side, as you suggested. Let me know if either of those times still work for you.

Hope you're doing well!

---

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Friday, June 15, 2018 3:33 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: State of Reliability Report

Hey Travis- Wanted to double back on this since you've been out. Thanks. -Fritz


**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6)
fritz.hirst@nerc.net
**Reliability | Accountability**


---

**From:** Fritz Hirst
**Sent:** Friday, June 08, 2018 11:35 AM
**To:** 'travis.fisher@ferc.gov' <travis.fisher@ferc.gov>
**Subject:** State of Reliability Report

Hey Travis- State of Reliability 2018 will be released on June 21. This is our annual report assessing

AMERICAN OVERSIGHT

performance of the BPS over the previous year, identifying trends and risks. James Merlo, NERC's Vice President of Reliability Risk Management, will be in town for the release and we'd like to try to visit with you for a briefing. We have our quarterly meeting the OER staff on the 21st. It ends by 3:30. Wondering if you might have time after that? We could also do Wednesday the 20th between 10 a.m. and 1 p.m. Thanks. -Fritz


_____

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6)
fritz.hirst@nerc.net
**Reliability | Accountability**



This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.

Warning: This email comes from an external sender. Be cautious when opening URLs or attachments from external senders.


Warning: This email comes from an external sender. Be cautious when opening URLs or attachments from external senders.



AMERICAN OVERSIGHT

**From:** Travis Fisher
**To:** Stephanie Grumet
**Subject:** RE: visiting FERC next week!
**Date:** Wednesday, June 20, 2018 1:49:00 PM

---

This whole saga is nothing if not complex—best of luck in sorting it all out for your clients.

Happy to reconnect any time!

---

**From:** Stephanie Grumet [mailto:sgrumet@capstonedc.com]
**Sent:** Tuesday, June 19, 2018 5:15 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** Re: visiting FERC next week!

Thanks so much for meeting with us. My clients absolutely know you do not speak for the Chair so you needn't worry. They really appreciated seeing you again!

We learned quite a bit about the 202c and DPA process - which is extremely helpful - I had no idea it was so complex!

Best-
Stephanie

On Jun 19, 2018, at 11:08 AM, Travis Fisher <Travis.Fisher@ferc.gov> wrote:

> Good to see you yesterday. After the meeting I was reminded to caveat all the thoughts I shared with the fact that I'm speaking for myself and not necessarily for the Chairman (especially as it relates to speculation about potential DOE action). I thought that was understood but I wanted to reiterate that for you and your guests.
>
> Let me know when you're in 888 again.
>
> ---
>
> **From:** Stephanie Grumet [mailto:sgrumet@capstonedc.com]
> **Sent:** Tuesday, June 12, 2018 9:45 AM
> **To:** Travis Fisher <Travis.Fisher@ferc.gov>
> **Subject:** visiting FERC next week!
>
> Hi Travis,
>
> Another dull week, right? We are coming to FERC to meet with your office next Monday with a group of clients -- pop your head in or join our meeting if you're in the office and available – we are scheduled to meet with Nicholas Gladd at 3:00. Big day on the hill today: I should really go to the hearing but I'm a Caps fan and thus duty

AMERICAN OVERSIGHT

bound to sneak a peek at the Cup during today's parade. Let's connect over coffee soon!

Stephanie

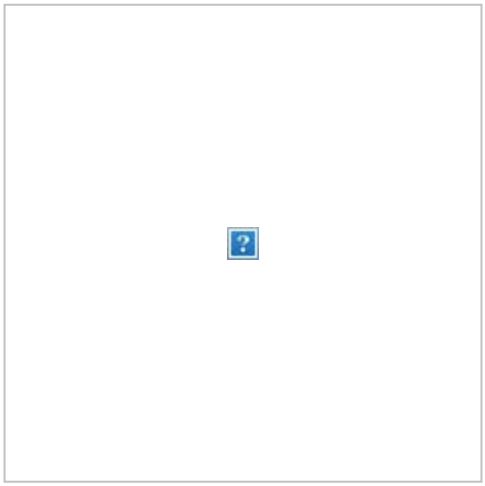
<image001.jpg>

**Stephanie Grumet, Senior Advisor**
**Capstone LLC** | 1400 Eye Street Northwest |Washington, DC
**D:** 2(b) (6)
**E:** sgrumet@capstonedc.com | www.capstonedc.com

AMERICAN OVERSIGHT

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: A "Fuel-Secure" Proposal for President Trump
**Date:** Friday, June 01, 2018 5:21:00 PM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## A "FUEL SECURE" PROPOSAL FOR PRESIDENT TRUMP

This morning, Bloomberg News published an internal, draft National Security Council policy memorandum intended to support long-rumored Department of Energy (DOE) action to prevent coal and nuclear generation unit retirements. Positioned to address national security concerns pursuant to authorities of the *Defense Production Act* (DPA), the *Federal Power Act* (FPA) and the more recent *Fixing America's Surface Transportation Act* (FAST Act), the two-year program referenced in the May 29 draft would direct regional transmission operators (RTOs) to contract with identified units for either capacity or energy to "forestall any further actions toward retirement" while DOE conducts further analysis. The memo also explains that eligible units outside of such markets would be directed to continue delivering energy according to existing contracting arrangements with load-serving entities (LSEs). While clearly marked as a draft that could be adopted, modified or rejected, we consider it to be a relatively mature proposal – developed with an eye to fending off long-promised legal challenges – that could materialize in the form of a formal DOE directive within days or weeks. Today, the White House indicated that the President looks forward to receiving DOE Secretary Rick Perry's recommendations on how to "stop the loss" of fuel-secure resources.

AMERICAN OVERSIGHT

---CLEARVIEW---

2018-06-01-DOE-NSC_Fuel_Security_Plan.pdf.

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

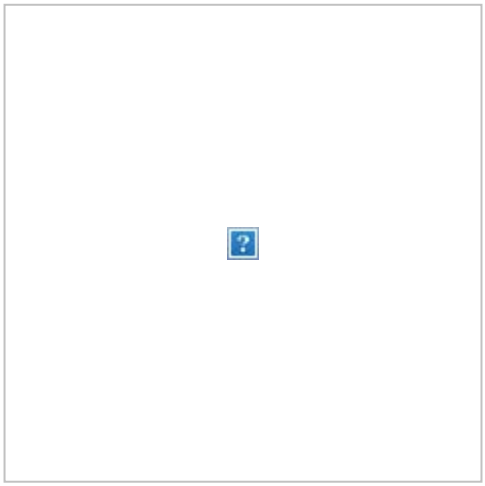
Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: CEQ Fires Up the NEPA "Write it Again" Effort
**Date:** Wednesday, June 20, 2018 5:39:39 PM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## CEQ FIRES UP THE NEPA "WRITE IT AGAIN" EFFORT

The Council on Environmental Quality (CEQ) has kicked off the first stage of a broad review of the existing regulations guiding the implementation of the *National Environmental Policy Act* (NEPA) that it has promised last September. In contrast to the “rip it up” approach the Trump Administration has taken to various rules issued by the prior administration, potential revisions to the NEPA regulations have been consistently cast in policy pronouncements as a “write it again” exercise. The CEQ’s Advance Notice of Proposed Rulemaking (ANOPR) asserts that only one substantive revision to the regulations (in 1986) has taken place since their issuance in 1978, implying that the regulations are ripe, if not overdue, for review. We expect that the current administration plans to narrow the scope of reviews within existing statutory authorities versus exercising discretion to broaden them, consistent with President Trump’s deregulatory agenda. As we have discussed frequently in the past, a rulemaking can also be a more durable policy mechanism than the issuance of guidance documents (such as the Obama-era *GHG Guidance*) that can be rescinded by presidential executive order. Assuming that the future revised rule meets the requirements of the *Administrative Procedures Act* (APA, the usual mechanism for opponents to challenge rules to implement statutes) and NEPA, we expect a fresh rule could help agencies defend their permits on

AMERICAN OVERSIGHT

judicial review.

CEQ has set a short comment period (30 days, ending July 20) to solicit feedback on broad questions. Several stakeholders have already criticized the comment interval to media as impossibly/unworkably short and too inside-baseball in structure to allow for robust participation from non-NEPA "experts" or non-practitioners. We expect that CEQ may be disinclined to extend this pre-rule comment period as we think CEQ plans to issue a Notice of Proposed Rulemaking (NOPR) this fall – with its own comment period – in order to finalize modifications to these regulations next year. Even if this ANOPR exercise is relatively short, we would suggest that prior CEQ proceedings provide insight on at some of the issues that frequently come up in the course of energy project permitting, particularly since the comments on the Obama Administration's *GHG Guidance* touched on several of the questions that CEQ asks (see Figure 1, inside). The ANOPR also suggests to us that CEQ may be contemplating changes to the 2014 *Guidance on Effective Use of Programmatic NEPA Reviews* (*Programmatic Guidance*).

---CLEARVIEW---

2018-06-20-CEQ_NEPA_ANOPR.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

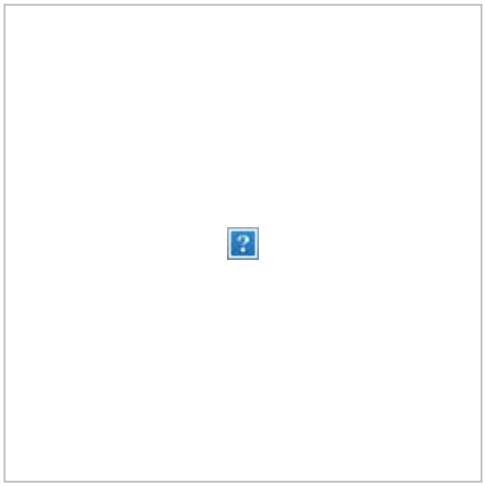
Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: Massachusetts - The Great Greening
**Date:** Thursday, June 21, 2018 12:55:55 PM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## MASSACHUSETTS - THE GREAT GREENING

Yesterday, the Massachusetts Legislature released the amended language of S. 2564, a broad energy package unanimously approved by the Senate last week that addresses statewide carbon emissions, renewable power, energy storage, electric rate design, and transportation electrification. We offer four initial thoughts. First, we estimate that the renewable mandate provision could require nearly 8 TWh of incremental policy-mandated renewable power generation by 2025 (a 70% increase from today's base case), and almost 13 TWh by 2030 (a 96% increase). Second, the bill's provision to set a 2,000 MW/2030 energy storage target could eventually compete for the market segment currently served by the Massachusetts' 811 MW of low-utilization gas-fired plants that consumed 7.41 MMcf/d last year; however, the Pilgrim nuclear power plant's scheduled closure in 2019 could lead to an increase in natural gas generation before a decline.

Third, the clean energy and offshore wind provisions would ask state regulators to *analyze* and *recommend* to the legislature whether and what types of incremental solicitations beyond those required by law could benefit Massachusetts ratepayers; therefore representing more of an inquiry starting point than a legislative mandate. Finally, we regard the bill as a continuation, if not an acceleration, of three electric sector trends we identified 18 months ago: (1) green states getting greener, (2) the regulatory rollback rebound, and (3) prescriptive "around-market" state policies.

State sources confirm reports that House Speaker Robert DeLeo (D) opposes raising the aggregate net metering cap, and may have undeclared broader concerns about one or two other provisions. As a key policy gatekeeper, he could represent a formidable hurdle. Still, we think it is more likely that

AMERICAN OVERSIGHT

the House would amend the bill to address the Speaker's (and other lawmakers' potential) concerns than disregard a bill passed unanimously by the Senate. The legislative session concludes at the end of July, providing sufficient but not extensive time for the bill to move forward. However, our favorable odds (60%) of passage decline each passing day the House does not act.

---CLEARVIEW---

2018-06-21-Massachusetts_Great_Greening.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: Steel Wheeling and Dealing?
**Date:** Friday, June 01, 2018 9:00:45 AM

View this email in your browser

Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## STEEL WHEELING AND DEALING?

Yesterday, President Donald Trump issued a *Proclamation* ending short-term exemptions for Canada, Mexico and the E.U. from March 2018-vintage 25% tariffs on steel imports (Figure 1). The *Proclamation* also finalized long-term exemptions for Argentina, Australia and Brazil in exchange for those countries' adoption of export quotas. Korea received an exemption in exchange for agreeing to quotas on April 30.

We would offer three immediate takeaways. First, we estimate that the new U.S.-imposed quantitative restrictions, which are retroactive to January 1, could result in meaningful (i.e., ≥50%) declines in pipeline and drilling steel imports from the four "quota countries" relative to the trailing, twelve-month (TTM) trend through April 2018.

Second, China fired the first shot at U.S. energy in this burgeoning trade conflict on April 2 with a 15% retaliatory surcharge on denatured ethanol. Reprisals from other countries could target other U.S. energy resources. Moreover, yesterday's tariffs marked the second escalation in a week; a flat-out trade war could limit U.S. producers' access to overseas markets and, one day, erode demand.

Third, as we suggested on May 30, the President's *mélange* of national security and commerce – we

AMERICAN OVERSIGHT

called it “all-inclusive international policy” – can imbue diplomatic spats with new potential to inflame commercial conflicts (and *vice-versa*). In this vein, using steel tariffs to collateralize other bargains, such as Iran sanctions or nuclear negotiations, could augment trans-Atlantic tensions.

We reiterate high and rising trade and sanctions risk to the energy sector.

---CLEARVIEW---

2018-06-01-Steel_Wheeling_and_Dealing.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

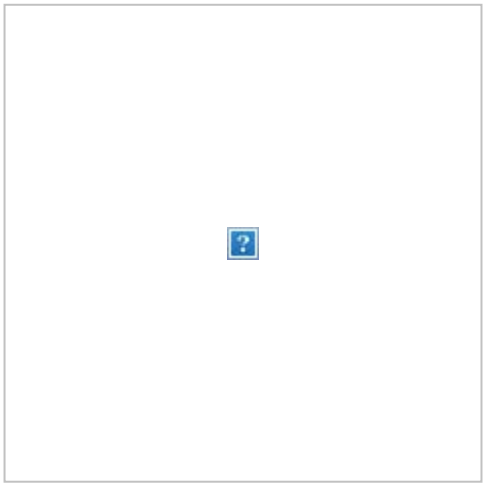
Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: The Escalation-Retaliation Cycle Revs Up
**Date:** Monday, June 25, 2018 4:59:42 PM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## THE ESCALATION-RETALIATION CYCLE REVS UP

Ten days ago, President Donald Trump announced 25% tariffs on $50 B of Chinese goods to punish intellectual property practices. China retaliated in proportion, targeting virtually every U.S. energy export but LNG in the process. President Trump threatened multiple rounds of subsequent escalations, $200 B at a time, and our trade risk dashboard went red.

To paraphrase *Jaws*, we're gonna need a bigger board. Last night, media sources reported that the White House plans to propose new limits on Chinese investment in the U.S. and new controls on U.S. technology exports to China. If it happens, we see little prospect that either the U.S. or China might soon back down from their $50 B face-off. Future retaliations could become more likely, too.

In that context, today's report takes a deeper dive into the June 15 tariffs and revisits the state of play across multiple arenas, including steel tariff retaliations by other countries, U.S. regulatory milestones and the (still dim) prospect of Congressional intervention. We reiterate high and rising trade and sanctions risk to the energy sector.

---CLEARVIEW---

AMERICAN OVERSIGHT

2018-06-25-Escalation_and_Retaliation.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

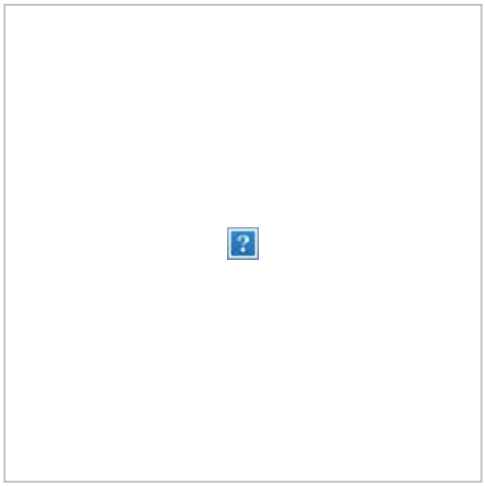
Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: White House Postpones RFS Reform Deal
**Date:** Wednesday, June 06, 2018 12:54:05 PM

View this email in your browser



Travis,

*** this is a flash blast for ClearView Energy Partners, LLC clients ***

## WHITE HOUSE POSTPONES RFS REFORM DEAL

The White House appears to have indefinitely postponed moving forward on the *Renewable Fuel Standard* (RFS) reform deal that President Donald Trump proposed on May 8, based on reports last night and this morning. Media sources had suggested that the White House might have been on the verge of outlining the deal publicly, but Iowa Republicans pushed back on it in recent days. We think it may be premature to call ongoing regulatory reform efforts dead – the President has demonstrated too much personal interest in striking a deal – but we also think it would be difficult for any deal to move forward with trade tensions as high as they are today (more on this in a separate report in a few hours).

**Leveraging Trade.** The postponement would appear to provide another data point indicating that the Trump White House has given Senate Judiciary Chairman Chuck Grassley (R-IA) a *de facto* veto on RFS reform. We had been looking to see if the President's commitment had weakened in light of the amount of time the he had devoted to a series of RFS meetings since December. Instead, we think Grassley, Senator Joni Ernst (R-IA) and their farm-state colleagues successfully leveraged agricultural stakeholders' concerns regarding elevated trade tensions, which have escalated in recent

AMERICAN OVERSIGHT

weeks, to hold off reforms. In fact, as we get closer to Congressional mid-term elections, we cannot reject the possibility that farm-staters might use trade woes to push the Administration towards a package that only includes their preferred reforms: support for year-round E15 sales and/or reapportionment of small refiner exemptions (SREs) from RFS requirements. Alternatively, we believe the prospects for an RFS reform deal with provisions sought by some refiners could improve if the Administration makes trade negotiation breakthroughs that placate agricultural stakeholders.

**Refiners test SREs boundaries.** As we have suggested since last fall, SREs may be the one lever Pruitt has left to provide significant RFS relief and he seems likely to pull hard on it in the absence of regulatory reform. EPA may be exploring how much further that lever can reach:

- *Going further back*. We had thought that EPA only issues SREs to reinstate RINs retired as far back as the previous compliance year. On May 31, *Reuters* reported that EPA awarded Sinclair and Holly Frontier 2018 RIN credits to reverse previous decisions denying SRE applications for relief from 2014 and 2015 RVOs. Our understanding is that Sinclair and Holly Frontier made timely SRE applications that EPA denied and won court-ordered remands. Our takeaway is that this avenue might be open to other previously denied refiners who win legal challenges, but perhaps not to those who have not applied.

- *Larger small refiners*. Also according to reports last month, Marathon applied for an SRE despite its smallest refinery, located in Canton, Ohio, having a capacity of 93,000 bbl/d. We do not know the basis of Marathon's application. Media sources have speculated that it could be an application for the Canton refinery if it had run at <75,000 bbl/d, or alternatively that it could be for a portion of a refinery. The RFS defines a small refiner as one where the "average aggregate daily crude oil throughput for a calendar year…does not exceed 75,000 barrels."

These two specific developments may not result in substantially more SREs given that, during Administrator Scott Pruitt's tenure, the EPA may have already awarded a cumulative total of nearly ~2 B gal. Instead, we view them as emblematic of a permissive SRE policy that should weigh heavily on RIN prices even in the absence of a refiner-friendly reform deal. Uncertainty regarding EPA's future reapportionment and curtailment plans, however, may be diminishing the ability of SREs to depress Renewable Identification Number (RIN) credit prices.

---CLEARVIEW---

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

AMERICAN OVERSIGHT

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

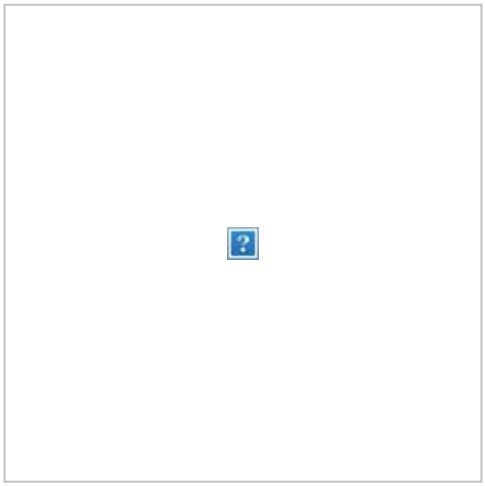
Please do not forward this email.

If you do not wish to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: FERC"s Resilience Proceeding in the DPA Context
**Date:** Friday, June 08, 2018 3:54:03 PM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## FERC'S RESILIENCE PROCEEDING IN THE DPA CONTEXT

While the May 29 draft memorandum supporting Department of Energy (DOE) action to prevent coal and nuclear unit retirements has recently taken center stage in the grid resiliency debate, the Federal Energy Regulatory Commission's (FERC) *Grid Resilience in Regional Transmission Organizations and Independent System Operators* proceeding (Resilience docket, AD18-7) remains open. More than 130 entities filed comments in May responding to regional transmission organizations (RTO) filings in that proceeding. Our review of these comments suggests a continued lack of consensus among stakeholders as to the urgency and scope of action needed to address resilience challenges. In our view, the lack of consensus – coupled with the prospect of a time-limited DOE program designed to retain "fuel secure" generation while DOE studies the reliability and resiliency of the grid – likely still leaves the Commission with a significant role in the resilience discussion. Chairman Kevin McIntyre suggested this week that he hoped additional action from FERC could occur this summer.

---CLEARVIEW---

AMERICAN OVERSIGHT

2018-06-08-FERC_Resilience_and_DOE_Action.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: Regulated Energy Playbook -- June
**Date:** Monday, June 18, 2018 2:29:55 PM

View this email in your browser

Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## REGULATED ENERGY PLAYBOOK -- JUNE

Welcome to the June 2018 edition of our *Regulated Energy Playbook* containing our one-page synopses of key energy and environmental issues affecting the electricity, renewable power and pipeline sectors.

As is our practice, we include updates of selected reference figures from prior reports providing a ready reference to relevant details.

**Highlights in this month's issue:**

**Power.** Critics claim there is no economic need for coal and nuke support in the name of resiliency, but DOE is eyeing other security priorities and may move forward anyway. PJM awaits a decision on its capacity reform proposal, New York continues with carbon pricing efforts, and FERC tells the 7th Circuit it can handle ZECs. We check in on small nukes, higher state RPS targets, PURPA reform, RGGI, offshore wind, distributed energy and storage, and EV charging initiatives as subnational policies continue to drive market outcomes. California contemplates wildfire liability at

AMERICAN OVERSIGHT

one end of the country, while New England evaluates green transmission projects on the other. Our transmission DCF estimates remain steady, although FERC has yet to untangle *Emera Maine*.

**Tax.** Another 13 electric companies may face FERC show cause orders on rates this week – the first wave of responses appeared unremarkable. We think FERC could move on the rule for voluntary rate cuts on gas pipelines this summer as the ADIT comments seemed straightforward, notwithstanding continued angst over MLP tax recovery and the lack of visibility on the status of non-MLP pass-throughs.

**Pipelines (natural gas).** Dissents continue on natural gas orders, making it clear to us that a Supreme Court appeal of the Sabal Trail ruling could meaningfully and durably shape potential reform of FERC's approach to issuing pipeline certificates. In the meantime, we expect FERC and other agencies to try and limit the adverse schedule impact projects face when judicial reviews question the quality of permit decisions (MVP, ACP, PennEast, etc.)

**LNG**. DOE touts the upside of unfettered exports in a new study... while FERC's earlier quick tempo on LNG reviews appears to have stalled.

**Liquids lines.** The balance of June promises news on Enbridge's L3R and Line 5 projects, while KXL trudges on through litigation. FERC may modify its 5Y Index program before its next refresh in 2020, while other pipelines may follow Seaway's lead to pursue market-based rates. No news yet on Magellan rehearing requests.

**Pollution.** President Trump elevates the *de facto* head of CEQ to the top job, keeping a steady hand and middle-of-the-road policy veteran in place to keep his deregulatory agenda moving forward, if on a moderate pace. The EPA's new policy on cost-benefit analyses is a key effort to constrain new regulations as prior rules are revisited and rewritten. Congress is still contemplating energy-related initiatives, and we see the groundwork ahead of mid-terms potentially paying off in the adoption of isolated provisions.

We look forward to your feedback.

---CLEARVIEW---

2018-06-18-Regulated_Energy_Playbook.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

AMERICAN OVERSIGHT

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

# DOCUMENT 37

**From:** Fritz Hirst
**To:** Travis Fisher
**Subject:** State of Reliability Report
**Date:** Friday, June 08, 2018 11:35:13 AM

---

Hey Travis- State of Reliability 2018 will be released on June 21. This is our annual report assessing performance of the BPS over the previous year, identifying trends and risks. James Merlo, NERC's Vice President of Reliability Risk Management, will be in town for the release and we'd like to try to visit with you for a briefing. We have our quarterly meeting the OER staff on the 21st. It ends by 3:30. Wondering if you might have time after that? We could also do Wednesday the 20th between 10 a.m. and 1 p.m. Thanks. -Fritz


_____

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6)
fritz.hirst@nerc.net
**Reliability | Accountability**



This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.



AMERICAN OVERSIGHT

**DOCUMENT 38**

**From:** (b) (6)
**To:** (b) (6) ; Joseph McClelland; (b) (6) David Ortiz; James Danly; David Morenoff; (b) (6)
**Cc:** Commissioners" Assistants
**Subject:** Summaries of OGC-EM Gas, Oil, and Electric Orders on the June 21, Agenda
**Date:** Friday, June 08, 2018 1:38:06 PM
**Attachments:** (b) (5)

---

Enclosed are summaries of OGC-EM electric, gas, and oil orders for the 6/21/18 agenda.

AMERICAN OVERSIGHT

# DOCUMENT 39

**From:** Mail Delivery System
**To:** william.booth@eia.gov
**Subject:** Undeliverable: Pre-2002 power plant retirements
**Date:** Thursday, June 21, 2018 2:14:48 PM
**Attachments:** Undelivered Message.msg

---

This is the mail system at host mailgate7.doe.gov.
I'm sorry to have to inform you that your message could not
be delivered to one or more recipients. It's attached below.
For further assistance, please send mail to postmaster.
If you do so, please include this problem report. You can
delete your own text from the attached returned message.

The mail system
<william.booth@eia.gov>: host
EIA-GOV.MAIL.PROTECTION.OUTLOOK.COM[23.103.198.10] said: 554 5.4.14 Hop
count exceeded - possible mail loop ATTR34
[CY1GCC01FT008.eop-gcc01.prod.protection.outlook.com] (in reply to end of
DATA command)

AMERICAN OVERSIGHT

# DOCUMENT 40

**From:** Mansueti, Lawrence
**To:** Travis Fisher
**Subject:** (b) (5) [redacted]
**Date:** Thursday, June 07, 2018 9:14:45 AM

---

(b) (5) [redacted]

AMERICAN OVERSIGHT

**Department of Energy**
Washington, DC 20585

FEB 1 5 2019

Sam Gomberg
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

Via email to: sgomberg@ucsusa.org

Re: HQ-2018-01432-F

Dear Mr. Gomberg:

This is a partial response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> "All emails, email attachments, or calendar invitations/entries sent or received between 1) political appointees at the Department of Energy and 2) any representative of Murray Energy or with email addresses ending in 'coalsource.com.'"

In an August 8, 2018, phone conversation, confirmed via email, with Celtia Rokebrand, formerly of my office, Mr. Mohammad Aslami, of your office, agreed to combine your request with HQ-2018-01433-F, amending this request to the following:

> All emails, email attachments, or calendar invitations/entries sent or received between political appointees at the Department of Energy and:
>
> a) Any representative of Murray Energy or with the email addresses ending in "coalsource.com" or
> b) Any representative of FirstEnergy or with the email addresses ending in "firstenergycorp.com"
>
> Provide records from January 1, 2018, to the present.

In that same conversation, Mr. Mohammad Aslami, of your office, agreed to exclude any publicly available documents and any auto-generated news bulletins. Mr. Aslami also agreed to limit the search to the following program offices:

- The Office of the Secretary;
- The Office of Fossil Energy;
- The Office of Congressional and Intergovernmental Affairs;
- The Office of the General Counsel;
- The Office of Public Affairs;

AMERICAN OVERSIGHT

- The Office of Electricity Delivery and Energy Reliability;
- The Office of Cybersecurity, Energy Security, and Emergency Response;
- The Office of Energy Efficiency and Renewable Energy; and
- The Office of Nuclear Energy.

Your request was assigned to DOE's Office of the Secretary (ES); the Office of Fossil Energy (FE); the Office of Congressional and Intergovernmental Affairs (CI); the Office of the General Counsel (GC); the Office of Public Affairs (PA); the Office of Electricity (OE); the Office of Cybersecurity, Energy Security, and Emergency Response (CESER), the Office of Energy Efficiency and Renewable Energy (EE), and the Office of Nuclear Energy (NE) to conduct a search of their files for responsive documents. DOE started its search on September 10, 2018, which is the cut-off date for responsive documents. This letter serves as a partial response for ES, FE, and NE. ES, FE, CI, GC, PA, OE, CESER, EE, and NE are continuing to process your request for additional responsive documents, which will be provided to you in a subsequent final response.

At this time, DOE has located seven (7) documents responsive to your request. These documents are being provided to you as described in the accompanying index.

Upon review, DOE has determined that certain information should be withheld pursuant to Exemptions 4 and 6 of the FOIA, 5 U.S.C. § 552(b)(4) and (b)(6).

Exemption 4 of the FOIA protects "trade secrets and commercial or financial information obtained from a person and privileged or confidential." This exemption is intended to protect the interests of both the Government and submitters of information. This exemption affords protection to submitters who provide commercial or financial information to the Government by safeguarding them from the competitive disadvantages that could result from disclosure. The exemption covers two broad categories of information in Federal agency records: 1) trade secrets, and 2) information that is (a) commercial or financial, and (b) obtained from a person, and (c) privileged or confidential.

The information being withheld under Exemption 4 consists of Jiangnan Environmental Technology's (JET) business model and descriptive summaries of work which is not available in the public domain and is considered confidential commercial information. It is considered commercial because the company submitted it to the Government for the purposes of conducting business. The information was obtained from a person, because "person" covers a broad range of entities including corporations. Nadler v. FDIC, 92 F.3d 93, 95 (2nd Cir. 1996). The information is considered confidential because its release is likely to cause substantial harm to the competitive position of the submitter, consistent with National Parks & Conservation Ass'n v. Morton, 498 F.2d 765 (D.C. Cir. 1974). Release of this information would be likely to cause substantial competitive harm to the submitting company by providing potential competitors with insight in the company's assets and business plans, possibly affording them the opportunity to use that information to enhance their own operations to the submitting company's competitive detriment.



AMERICAN OVERSIGHT

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of mobile telephone numbers and personal information belonging to an individual. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that the agency is justified in not releasing material that the agency reasonably foresees would harm an interest protected by one of the statutory exemptions. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, a redacted version of the document is being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss



AMERICAN OVERSIGHT

any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 14, 2018, letter, you were advised that your request was placed in the "scientific" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

DOE is continuing to process your request. If you have questions about the processing of the request or this letter, please contact Ms. Elizabeth Sullivan in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at (202) 586-5955.

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01432-F**

**First partial response to request from Mr. Sam Gomberg for:**

> **"All emails, email attachments, or calendar invitations/entries sent or received between 1) political appointees at the Department of Energy and 2) any representative of Murray Energy or with email addresses ending in 'coalsource.com.'"**

**In an August 8, 2018, phone conversation, confirmed via email, with Celtia Rokebrand, formerly of my office, Mr. Mohammad Aslami, of your office, agreed to combine your request with HQ-2018-01433-F, amending the request to the following:**

> **All emails, email attachments, or calendar invitations/entries sent or received between political appointees at the Department of Energy and:**
>
> **c) Any representative of Murray Energy or with the email addresses ending in "coalsource.com" or**
> **d) Any representative of FirstEnergy or with the email addresses ending in "firstenergycorp.com"**
>
> **Provide records from January 1, 2018, to the present.**

**In that same conversation, Mr. Mohammad Aslami, of your office, agreed to exclude any publicly available documents and any auto-generated news bulletins. Mr. Aslami also agreed to limit the search to the following program offices:**

- **The Office of the Secretary;**
- **The Office of Fossil Energy;**
- **The Office of Congressional and Intergovernmental Affairs;**
- **The Office of the General Counsel;**
- **The Office of Public Affairs;**
- **The Office of Electricity Delivery and Energy Reliability;**
- **The Office of Cybersecurity, Energy Security, and Emergency Response;**
- **The Office of Energy Efficiency and Renewable Energy; and**
- **The Office of Nuclear Energy.**

DOE conducted a search of its files, and at this time, has identified seven (7) documents responsive to your request.

- Three (3) documents *are being released in their entirety.*

AMERICAN OVERSIGHT

- Three (3) documents are *being withheld in part pursuant to Exemption (b)(6).* Exemption 6 information consists of mobile telephone numbers and personal information belonging to an individual.

- One (1) document is being released in part pursuant to Exemption (b)(4). Exemption 4 information consists of confidential commercial information.



AMERICAN OVERSIGHT

**Rokebrand, Celtia R. (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, February 16, 2018 11:12 AM
**To:** jeckard@firstenergycorp.com
**Subject:** Test



AMERICAN OVERSIGHT

**Flores, Paola (CONTR)**

**From:** Winberg, Steven
**Sent:** Thursday, March 22, 2018 9:17 AM
**To:** bobmurray@coalsource.com
**Cc:** mcarey@coalsource.com
**Subject:** DOE Coal Roundtable Meeting
**Attachments:** April 2018 Wye Agenda.doc; Wye Participant List.docx; Directions to the Wye River Conference Center.docx

Dear Mr. Murray

I enjoyed seeing you at the National Mining Association Board meeting earlier this week and want to thank you for your support on the DOE fossil energy initiatives.

I would also like to invite you (or your designee) to participate in a small, strategic workshop being organized by my office to explore the challenges and opportunities (especially transformational coal technology opportunities) in the electricity generation sectors that will help achieve President Trump's commitment to reinvigorate the coal industry and create jobs.

The workshop is designed to be a collegial, interactive, roundtable discussion at a strategic level and less on formal presentation (but will include some presentations to stimulate discussion). DOE has periodically organized such workshops to discuss important, strategic coal topics.

Participation in the workshop is by invitation only – space is limited. The geographic location of this workshop will be at the Wye Conference Center near Queenstown, Maryland (eastern shore Maryland about 75 miles from DC). This very informal facility used to be owned by the University of Maryland but is now under new ownership. It is somewhat remotely located with the conference facilities, participant lodgings and all meals provided at that one location. These DOE workshops have come to be known as the Wye workshops given their organization at the Wye Conference Center.

The workshop has been scheduled for April 3rd to 5th, 2018, checking in at 2-4PM on Tuesday, April 3rd (with a reception, dinner, and a short evening session). There will be all-day workshop discussions/presentations on Wednesday, April 4th, followed by a morning session on Thursday April 5th followed by a lunch at noon to end the workshop. There is a registration fee of $830 for this workshop, which covers all on site costs, lodgings (Tuesday and Wednesday night), dinner on Tuesday evening; breakfast, lunch, reception and dinner on Wednesday; and breakfast and lunch on Thursday (and refreshments during the meeting breaks).



AMERICAN OVERSIGHT

If you are able to participate, your Workshop registration and room reservation at the Wye River Conference Center will be taken care of without any action required on your part (there are no other convenient lodgings in the area).

The workshop agenda, participant list and directions are attached.

Please let me know if you or your selected designee can participate.

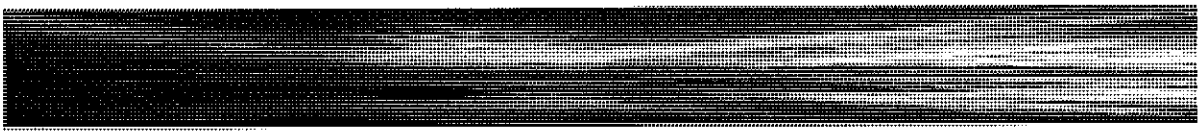
Thank you,

*Steve*

Steven Winberg
Assistant Secretary
Office of Fossil Energy
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
202 586 6660



AMERICAN OVERSIGHT



# Wye Workshop on
# Invigorating the U.S. Clean Coal Industry
# April 3-5, 2018

Maximizing the availability and clean use of all of our domestic energy resources is critically important to U.S. national security, energy security and dominance, economic growth, and job creation. Coal is our most abundant energy resource and coal power plants contribute greatly to grid generation diversity, resilience and reliability. The development and deployment of transformational clean coal technologies can provide a pathway to having competitive, coal power plant options available to replace plants being retired and as options for future capacity additions. Success in this regard will require an innovative strategic approach, including the consideration of modular, standardized designs and smaller unit deployment. It is highly unlikely that new commercial coal plants will be built absent the availability of competitive, transformational technology, regulatory relief, and Federal Government leadership.

In the short term, regulatory reforms along with existing plant upgrades could modernize existing power plants (which includes improving their efficiency and overall performance) and maximize their service life.

Longer term, existing power plants will eventually have to be replaced and new plants will have to eventually be built to meet future growth in electricity demand.

What can be done to assure grid diversity and retention/expansion of coal in the generation mix to assure grid reliability and resilience?

**Day 1 – Tuesday (April 3)**

2-4:00 PM Check-in

5:00 PM **Session 1: Future Coal Technology Needs and Issues**

5:00 PM **Presentation:** *CURC Vision for Future Technology Needs and Issues*
**Presenter** (Followed by Discussion): Shannon Angielski, Executive Director, CURC

5:30 PM **Presentation:** *Regulatory Update & Update on Deregulated Market Impacts on Base Load*
**Presenter** (Followed by Discussion): Mike Nasi, Partner, Environmental & Legislative Practice Group, Jackson Walker, L.L.C

AMERICAN OVERSIGHT

6:00 PM **End of Day 1 Discussions**

6:30 PM **Reception** (Informal continuation of discussions)

7:00 PM **Dinner**

**Day 2 – Wednesday (April 4)**

7:00 AM **Breakfast**

8:00 AM **Welcome and Introductory Comments**
Steven Winberg, Assistant Secretary for Fossil Energy, U.S. Department of Energy (ASFE).

8:15 AM **Session 2: Future Coal Technology Directions and Considerations**

**Opening Remarks:** *Opportunities for Invigorating the U.S. Clean Coal Industry: Strategic Directions & Potential Role for Transformational Technologies*
**Speaker**: Secretary Winberg, ASFE

9:15 AM **Roundtable Discussion**: *Opportunities for Invigorating the U.S. Clean Coal Industry: Strategic Directions & Potential Role for Transformational Technologies*

10:15 AM **Break**

10:45 AM **Continuation Roundtable Discussion**: *Opportunities for Invigorating the U.S. Clean Coal Industry: Strategic Directions & Potential Role for Transformational Technologies*

11:15 AM **Remarks** (Followed by Discussion): *Transformational Coal Technology Directions & Strategic Considerations*
**Speaker:** Kerry Bowers, VP, Technology Licensing, Southern Company Services

12:00 PM **Remarks** (Followed by Discussion: *The Need and Potential for Clean and Efficient Coal Technologies*
**Speaker:** Robert M Pugret, President, Energy of Industries of Ohio

12:45 PM **Lunch** (Informal continuation of discussions)

2:00 PM **Continuation of Session 2**

2:00 PM **Remarks** (Followed by Discussion): *Basin Electric Perspectives*
**Speaker:** Gavin McCollam, Director, Engineering Services, Basin Electric Power

AMERICAN OVERSIGHT

2:30 PM **Remarks** (Followed by Discussion): *Tri-State Perspectives*
**Speaker**: Doug Lempke, Tri-State

3:00 PM **Remarks:** (Followed by Discussion): *All of the above Fossil Fuel Considerations*
**Speaker:** Mike Moore, Managing Partner, East-West Strategic Advisors

3:45 PM **Break**

4:15 PM **Roundtable Discussion:** *Perspectives on Earlier Discussions*

5:30 PM **End of Day 2 Discussions**

6:00 PM **Reception** (Informal continuation of discussions)

7:00 PM **Dinner** (Informal continuation of discussions)

**Day 3 – Thursday (April 5)**

7:30 AM **Breakfast** (Informal continuation of discussions)

9:00 AM **Remarks** (Followed by Discussion): *Peabody perspectives on coal and coal-based power generation*
**Speaker:** Holly Krutka, PhD, VP, Coal Generation & Emission Technologies, Peabody

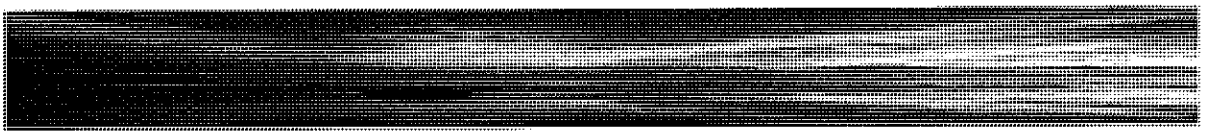
9:45 AM **Break**

10:00 AM **Summation and Wrap-Up Roundtable Discussion**
Discussion Leader: Secretary Winberg

11:30 AM **Lunch** (Informal continuation of discussions)

***End of Workshop***

AMERICAN OVERSIGHT



# Wye Workshop on
# Invigorating the U.S. Clean Coal Industry
# April 3-5, 2018

## PARTICIPANT LIST

**Workshop Chair:** Steven Winberg, DOE Assistant Secretary for Fossil Energy (ASFE)

Shannon Angielski, Executive Director, Carbon Utilization Research Council (CURC)
Kerry Bowers, VP, Technology Licensing, Southern Company Services, Inc.
Jarad Daniels, Director, Office of Strategic Planning & Global Engagement, DO/FE
Robert Gentile, former DOE ASFE & President/CEO, LTI
Joseph Giove III, Director, Coal Business Operations, DOE/FE
John Harju, VP, Strategic Partnerships, UNDEERC
Angelos Kokkinos, Director, Office of Advanced Fossil Technology Systems, DOE/FE
Holly Krutka, PhD, VP, Coal Generation & Emission Technologies, Peabody
Doug Lempke, Tri-State Generation & Transmission Association, Inc.
Mark Maddox, Principal Deputy Assistant Secretary (PDAS), DOE/FE
Doug Matheney, Special Advisor to the Secretary, DOE/FE
Gavin McCollam, Director, Engineering Services, Basin Electric Power Cooperative
Darren Mollot, Associate DAS for Clean Coal and Carbon Management, DOE/FE
Mike Moore, Managing Partner, East-West Strategic Advisors
Mike Nasi, Partner, Environmental & Legislative Practice Group, Jackson Walker, L.L.C.
Ken Nemeth, Executive Director, Southern States Energy Board
Sean Plasynski, PhD, Director (Acting), DOE National Energy Technology Laboratory
Robert Pugret, President, Energy Industries of Ohio
Mike Smith, former DOE ASFE & Executive Director, Interstate O&G Compact Commission
Ken Vincent, Chief of Staff (Acting), DOE/FE

**Workshop Support:**
Doug Carter, **Workshop Facilitator**, former Director DOE/FE Coal Policy/Strategy Office
JP Dutton, LTI
George Rudins, former DOE Deputy Assistant Secretary for Clean Coal

AMERICAN OVERSIGHT

**Directions to the Wye River Conference Center (Provided by the Wye)**

**River House 600 Aspen Drive**
**Queenstown, MD 21658**
**Ph: 410 820 0906**
**Fx: 410 820 5390**

From WEST- US-301N/US-50 E to Chesapeake Bay Bridge (toll plaza), Proceed over Bay Bridge on US-301N/US-50 E to Chesapeake Bay Bridge (toll plaza), cross over Chesapeake Bridge for approximately 15 miles, continuing on US 50 E towards Ocean City at the split. In approximately 2 miles, turn right onto Carmichael Road (you will see a sign for the Aspen Institute and Wye at the Intersection). Continue on Carmichael to intersection with Cheston Lane. To reach River House proceed straight ahead.

FROM SOUTH-From I-95 North, follow signs for I-495/Baltimore, continue on I-495 E/I-5 N, passing through District of Columbia, Entering Maryland, (21 miles), Take Exit 19A to merge onto US-50 E (partial toll) for approximately 40 miles, Use the right 2 lanes to US 50 E exit toward Ocean City for .2 miles, continue on US-50 E. Turn right onto Carmichael Road at blinking light for approx. 4 miles and follow signs to property.

FROM **BALTIMORE/WASHINGTON** INTERNATIONAL THURGOOD MARSHALL AIRPORT- On leaving airport follow sign marked EASTERN SHORE and BAY BRIDGE. To get to U.S. Route 50 East, follow signs marked BAY BRIDGE. Proceed over Bay Bridge on US-301N/US-50 E to Chesapeake Bay Bridge (toll plaza), cross over Chesapeake Bridge for approximately 15 miles, continuing on US 50 E towards Ocean City at the split. In approximately 2 miles, Turn right onto Carmichael Road. Continue on Carmichael to intersection with Cheston Lane. To reach River House proceed straight ahead.

**FROM RONALD REAGAN WASHINGTON NATIONAL AIRPORT**- On leaving airport follow U.S. Route 1 through Alexandria, Virginia to Interstate 95 North. Follow Interstate 95 North to U.S. Route 50 East. Continue over the Chesapeake Bay Bridge. Turn right 1/2 mile after milepost 49 at Carmichael Road and sign marked Aspen Institute. Proceed about 3 miles to intersection with Cheston Lane. To reach River House proceed straight ahead.

AMERICAN OVERSIGHT

## Flores, Paola (CONTR)

| | |
|---|---|
| **Subject:** | Follow up Call with Robert Murray |
| **Location:** | Steve will Call Mr. Murray at (b) (6) |
| **Start:** | Fri 3/23/2018 3:00 PM |
| **End:** | Fri 3/23/2018 3:30 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Winberg, Steven |
| **Required Attendees:** | Jenkins, Patsy |



AMERICAN OVERSIGHT

## Flores, Paola (CONTR)

**From:** Winberg, Steven
**Sent:** Thursday, March 29, 2018 1:13 PM
**To:** bobmurray@coalsource.com
**Subject:** FW: Title XVII Application Info
**Attachments:** Title XVII application background.pdf; Solicitation Part I Appendix.pdf; Solicitation Part II Appendix.pdf

Bob
Attached is the information for the Loan Program.
DOE is happy to meet with you to discuss in more detail.

https://www.energy.gov/sites/prod/files/2016/06/f33/Suggestions_for_Strong_Loan_Guarantee_Application_June2016.pdf

https://www.energy.gov/lpo/title-xvii/title-xvii-faqs

https://www.energy.gov/lpo/title-xvii/title-xvii-project-eligibility



AMERICAN OVERSIGHT

**Suggestions for a Strong Title XVII Innovative Clean Energy Loan Guarantee Application**
June 24, 2016

---

The U.S. Department of Energy's (DOE) experience with previous loan guarantee solicitation processes has yielded useful lessons. Where possible, DOE has tried to incorporate these lessons into new solicitations in order to make the application process transparent and robust, yet efficient. Stronger applications will enable DOE to process loan guarantee applications more efficiently, significantly reducing the administrative and resource burdens on the applicant as well. To that end, DOE has compiled the following non-exhaustive list of features that have historically distinguished particularly strong applications from weaker ones. These attributes are grouped into three categories:

- Key attributes that facilitate the *financial evaluation*
- Key attributes that facilitate the *technical evaluation*
- *Administrative suggestions* to facilitate the overall review process

**Please note that the list below is not exhaustive, nor is every element discussed equally relevant to every application. In addition, although this document discusses individual attributes that may yield a stronger application, the application ultimately will be evaluated on its overall merits, and no single attribute is likely to be dispositive.** Please refer to the relevant solicitations (http://energy.gov/lpo/title-xvii-open-solicitations) for all information on complete application requirements and evaluation scoring criteria. This document is intended solely to serve as a guidance tool to help prospective applicants submit the strongest applications possible.

**NOTWITHSTANDING ANYTHING IN THIS DOCUMENT, THERE CAN BE NO ASSURANCE THAT ANY APPLICATION ADHERING TO THE SUGGESTIONS SET FORTH HEREIN WILL BE SELECTED FOR ADDITIONAL DUE DILIGENCE AND NEGOTIATION OR WILL ULTIMATELY BE APPROVED BY DOE FOR A CONDITIONAL COMMITMENT OR A LOAN GUARANTEE. ALL DECISIONS BY DOE ON AN APPLICATION WILL BE BASED ON A COMPETITIVE EVALUATION USING THE PARTICULAR EVALUATION FACTORS SET FORTH IN THE SPECIFIC SOLICITATION. ALL DECISIONS BY DOE ON ANY PARTICULAR APPLICATION ARE FINAL AND NON-APPEALABLE.**

**THE TERMS OF THE APPLICABLE SOLICITATION WILL GOVERN THE EVALUATION PROCESS AND IN THE EVENT OF ANY INCONSISTENCY BETWEEN THIS DOCUMENT AND THE APPLICABLE SOLICITATION, THE SOLICITATION WILL CONTROL.**



AMERICAN OVERSIGHT

## *Financial Attributes*

This section includes some of the key characteristics that can strengthen the financial review of Title XVII innovative clean energy project applications.

- **Third-party supply and off-take agreements.** Information on supply and off-take agreements supports revenue and cost projections – having a reliable source of raw materials or a buyer committed to purchasing the output of a project at a certain price provides significant comfort to a lender. Applications that do not include any third-party supply or off-take agreements may be compared unfavorably to applications that include such agreements in the financial review. These are helpful determinants of credit quality, even in draft form. The strongest applications will provide the following support:
  - Agreements for a term that matches the entire proposed tenor of the loan
  - Agreements with subsidiaries or third parties of strong credit quality
  - Agreements with independent third parties

- **Engineering, Procurement, and Construction (EPC) contracts.** Strong EPC contracts provide for liquidated damages and performance guarantees by the contractor, and are concluded with a large, established, creditworthy counterparty. While this may not be feasible in its entirety for every project, applications which lack an EPC contract, do not provide insight into key EPC terms, or which include contracts presenting highly variable costs, may be deemed weaker than comparable applications that include EPC contracts and/or terms.

- **Construction budgets.** Detailed construction budgets strengthen applications, particularly for innovative projects that may face increased risk of cost overruns. Applications that do not provide detail in their construction budgets often fail to specify the total cost of a plant as a single item, or may fail to provide for reserves or contingencies, among other omissions. This can weaken a project's financial assessment.

- **Identification of resources.** The strongest applications fully identify and account for all the resources necessary for a project to become fully operational, including capital goods, raw materials, O&M requirements and decommissioning. Failure to do this contributes to weakness in financial models and may result in overly optimistic project timelines and financial projections.

- **Permitting and Environmental Review.** Applicants should fully account for fulfilling permitting and environmental review requirements, particularly National Environmental Policy Act (NEPA) requirements, in project timelines. Acquiring the various local, state, and federal permits that may be needed to implement a project is often a time-consuming process. More guidance on NEPA and environmental requirements is available on the Loan Program Office's (LPO) website (http://www.energy.gov/lpo/title-xvii-environmental-compliance). Attachment B in LPO Title XVII solicitations provides more detailed information on environmental information to include in an application (http://www.energy.gov/lpo/title-xvii-open-solicitations).



AMERICAN OVERSIGHT

- **Intellectual property (IP).** Strong applications will demonstrate clear rights to the IP necessary to implement the project. This is especially important in the case of innovative projects.

- **Access to IP in a default scenario.** Where proprietary technology is essential to the operation of a project, a willingness to assign those IP rights to the DOE as collateral in the event of default also strengthens the application. The purpose of providing DOE access to the company's IP is to allow DOE to continue operating the project in a default scenario.

- **Sources of equity.** Equity participation is a requirement of all loan guarantee applications, and applicants should clearly substantiate all sources of equity. The strongest applications demonstrate equity that is readily available and provided directly by the project sponsor or a combination of the sponsor and committed, creditworthy joint venture partners. Applications that rely on one or more of the following sources of equity, for example, may be viewed as comparatively weak:
  - Equity to be raised from unidentified / third parties
  - Equity contingent upon yet-to-be-generated revenues from earlier phases of the project
  - Equity contingent upon successful raisings of debt

  Some projects plan to raise equity following receipt of a conditional commitment for a loan guarantee. This is not preferred by DOE; however it may be acceptable in some cases. Projects that have a substantial equity commitment prior to applying for a loan guarantee likely will rate higher for that criterion in the review process than projects that do not have a substantial equity commitment at the time of application.

- **Project sites.** Stronger applications both identify and demonstrate control over a project site, or document steps taken to establish control. Weaker applications do not identify host sites or are very early in the siting process.

- **Working financial model.** A working financial model is necessary for lenders to evaluate and validate the prospects for profitability of a project. All applications should contain a viable financial model. Key elements of a strong working financial model include:
  - A thorough explanation of the assumptions underlying the model, such as average production, costs and selling prices as appropriate
  - Reserve accounts for future expenses (e.g. major maintenance; decommissioning)
  - A structure that allows reviewers to access the model, test a range of assumptions and understand the process through which the model is expected to achieve its results.

- **Monetization of tax/regulatory incentives.** Tax credits and certificates that cannot be used by applicants should be monetized, or converted into cash. Strong applications demonstrate a clear strategy for the monetization of state and federal tax incentives. Appropriate monetization strategies could include off-take agreements for the sale of



AMERICAN OVERSIGHT

Renewable Energy Certificates, or the confirmed participation of an equity provider with the tax capacity to make use of tax incentives.

- **Market and competition.** Strong applications will provide information on their markets and competition, including data to substantiate any claims made in the application. Useful information for such consideration includes average selling prices, segmentation (to the extent that it exists) and both historical and forward-looking market trends.

### *Technical Attributes*

This section includes some of the key characteristics that can strengthen the technical review of project applications.

- **Pilot / demonstration plant data.** In general, applicants proposing innovative projects should be able to submit a minimum of 1,000 to 2,000 hours of operating data from a demonstration facility that uses the same technology as proposed in the project application. This is essential to determining the project's capability to support a loan. Particularly in the case of innovative projects, weak applications may provide only limited pilot or demonstration plant data, or may provide data from a plant design that differs from the one proposed in the application.

- **Engineering reports.** All applications submitted by project sponsors or proposed borrowers should include a project-specific engineering report. Reports that discuss the general technology, rather than the use of that technology in the specific context of the project proposed, are of minimal assistance, especially in the evaluation of the technical and financial viability of an application proposing an innovative project

- **Technological advantages.** Applications required to satisfy Section 1703 of Title XVII should discuss and highlight how the technology as proposed in the project constitutes a new or significant improvement over existing competing technologies in the U.S. commercial marketplace today (e.g. cost, greenhouse gas emissions avoidance or reductions, etc.). Weaker applications proposing innovative projects may fail to provide this context.

- **Mitigation of technology risk.** Particularly in the case of innovative projects, strong applications will discuss how to mitigate technology risk. Stronger applications address alternative scenarios in the event that critical technologies fail or do not perform as expected. For example, applicants may address this risk through warranties, production or performance guarantees, corporate guarantees, letters of credit, performance bonds, etc.

- **Management Capability and key staff.** Applications should provide clarity on the applicant sponsor's capability and its key staff. In addition to the staff biographies, stronger applications should include management's experience, expertise, history, and organizational structure, as well as roles and responsibilities. Stronger applications explain how the experience and skills of key employees will uniquely contribute to the success of the proposed project.



AMERICAN OVERSIGHT

## *Administrative Suggestions*

This section includes administrative suggestions for application submissions that will enable the LPO to review applications more efficiently.

Please note: These are suggestions, not requirements, and are not related to application evaluation criteria.

- **Searchable PDFs.** Searchable application PDF files are very helpful to reviewers. Generally, PDF files that are generated from word processing software are inherently searchable, whereas PDF files generated from printed, scanned documents are not.

- **Consolidation.** It is similarly helpful to reviewers if application materials submitted in response to a particular section of the application instructions are consolidated into as few PDF files as possible.



AMERICAN OVERSIGHT

The Application is divided into a Part I submission and a Part II submission. Part I of the Application provides DOE with a description of the Project, technical information, expected environmental effects, background information on management, financing strategy, and progress to date of critical path schedules. This information will be used as a basis for determining the overall eligibility of the Project and the Project's readiness to proceed. DOE will evaluate each Part I submission based upon the factors summarized herein, however, DOE may require that Applicants provide additional certifications or supporting documentation as part of the Project evaluation process. If an Applicant is invited to submit a Part II submission, to the extent that there are any material deviations from the information provided to DOE in the Part I submission, the Applicant must update the information.

The information requested in Part I Section A is to be entered directly into the text fields provided in the Application Portal. The information requested in Part I Sections B through H is to be provided on PDF or Excel documents uploaded through the Application Portal. **Uploaded documents must indicate clearly the section and subsection of the Part I requirement to which the information on the documents pertains.**

## I. Part I Submission

### A. Application Information

1. **Project Information**: Enter the Project name, select the applicable technology category or categories (_____), and enter the Project/generation capacity (in Megawatts, Gallons per Year, Tons per Year, or Other).

2. **Project Location**: Enter the following information regarding one or more Project locations: address, city, state, zip code.

3. **Project Sponsor(s)**: Enter the following information for each Project Sponsor with equity of five percent (5.0%) or more: indicate whether lead sponsor (must have one lead sponsor), entity name, website address, mailing address, city state, postal code, contact first name, contact last name, contact title/position, contact phone, and contact email.

4. **Applicant Information**: Enter the following information for the Applicant: Applicant entity name, website address, mailing address, city, state, postal code, DUNS number, NAICS code, primary contact information including first name, last name, title/position, phone, and email.

5. **Preliminary Questions**: Answer the following questions. If the answer to any of these questions is "No" include a detailed explanation of the circumstances that cause the answer to be "No" in the space provided.

    a) Do you confirm you have read and understand the Loan Guarantee Solicitation Announcement from the U.S. Department of Energy Loan Programs Office regarding Federal Loan Guarantees for Advanced Nuclear Energy Projects?



AMERICAN OVERSIGHT

b) Is the Applicant legally authorized to enter into loan guarantee transactions and in good standing with the U.S. Department of Energy and/or any other federal agency loan guarantee program?

c) Is the Applicant current on payment of all amounts owed to the federal government?

d) Will the Project be built and operated entirely within the United States or its territories?

e) Do you confirm that to the best of the Applicant's knowledge, after making diligent inquiry, that no Project participant has been charged with or convicted of a misdemeanor or felony (other than routine traffic violations) or been involved in any securities litigation?

6. **Summary of Loan Guarantee Request**: Enter the following information regarding the Applicant's loan guarantee request: requested period of guarantee (years), total Project Costs, proposed guarantee amount, debt, and equity. The sum of the amount entered for debt and the amount entered for equity should equal the amount entered for total Project Costs. The amount entered for the proposed guarantee amount should not be more than the amount entered for debt. On the basis of the above entered amounts, calculations will be made to determine the following amounts: debt to equity ratio, proposed guarantee amount to debt percentage, and proposed guarantee amount to total Project Costs percentage.

## B. Option to Restrict Disclosure and Use of Certain Data

Section VII.D of the Solicitation sets forth the steps an Applicant must take in order to restrict the use and disclosure of certain data submitted in the Application. In order to restrict the use and disclosure of certain data submitted in Part I of the Application (to the extent permitted by applicable law) the Applicant must upload a separate page containing the legend set forth in Section VII.D.1 of the Solicitation. If the Applicant does not want to restrict the use and disclosure of any data submitted in the Application the Applicant must upload a separate page containing the following statement: "Applicant does not identify any data the use and disclosure of which is to be restricted."

## C. Organization (Corporate and Personnel)

1. **Organizational Chart**: Provide a current corporate organizational chart showing the Applicant's relationship to any subsidiaries, affiliates, parent organizations, or joint ventures associated with the Project. Show the Applicant's relationship to each Principal. For the purpose of this Solicitation, a "**Principal**" is any person who owns or will own five or more percent of the Project.

2. **Key Staff**: List the full names (including middle name or initial) of key staff to be involved with the Project.

3. **Evidence of Authority**: Submit evidence that the signatory of the Application has authority to bind the Project Sponsor to the commitments and representations made in the Application and attests as to the accuracy of the information provided in the Application process.



AMERICAN OVERSIGHT

## D. Project Description

1. **Executive Summary**: Provide a description of the nature and scope of the Project, including the technology, site, environmental resources affected, purpose, size, capacity, design features, key metrics, and key milestones. Describe the commercial feasibility of the technology(ies) and how you intend to employ such technology(ies) in the Project and how you assure, to the extent possible, the further commercial availability of the technology(ies) in the United States. Include target dates for:

   a) financial close of the Loan Guarantee Agreement;

   b) commencement of site preparation and construction;

   c) commercial operation; and

   d) marketing the output.

2. **Project Eligibility**: Provide a detailed explanation of how and to what extent the Project will qualify as an Eligible Project. DOE will base its determination that the Project is an Eligible Project on the information the Applicant furnishes in its Part I submission. Applicants are encouraged to be thorough in their explanations of a Project's qualification as an Eligible Project, including a discussion of the threshold determinations set forth in Section 609.7(a) of the 1703 Regulations, all of the eligibility requirements of Title XVII of the 1703 Regulations, and all of the eligibility requirements listed in Section II of the Solicitation, "Eligibility Information".

3. **Project Sponsors' and Principals' Capabilities**: Describe each Project Sponsor's and each Principal's capabilities, financial strengths, investment in the venture to date and as anticipated during the construction and operation phases of the venture (i.e., continuing financial support) and proposed equity investment in the Project, as well as the Project's strategic significance to each Project Sponsor and Principal.

4. **Prior Experience**: Summarize the prior experience of each venture participant as it relates to carrying out undertakings similar to the one being proposed. Include a detailed description of current and previous experience with Advanced Nuclear Energy Projects. Applicants must, at a minimum, describe (a) examples of at least two projects in the Advanced Nuclear Energy Projects sector similar in nature and scope (whether innovative or not) to the Project being proposed that have been completed (developed, financed, and managed construction) by the Applicant's organization or its Principals, and (b) examples of at least two projects in the Advanced Nuclear Energy Projects sector for which the Applicant's organization or Principals raised equity and secured debt for project financing, and (c) examples of at least two projects in the Advanced Nuclear Energy Projects sector for which the Applicant's organization was responsible for managing the operations and maintenance of a project for a minimum of two years. Each project example must be a project for which construction has been completed. Applicants that are not able to include examples of two projects in their description of current and previous experience in the Advanced Nuclear Energy Projects sector should provide a detailed description of the facts that they believe are sufficient to demonstrate to DOE that they have the expertise that would be evidenced in current or previous experience in the Advanced Nuclear Energy Projects sector by examples of two projects.



AMERICAN OVERSIGHT

EXT-18-2615-D-000018

DOE will determine, in its sole and final judgment, whether the experience described shows sufficient expertise.

5. **Project Costs**: Provide the estimated total Project Costs, as defined in Sections 609.2 and 609.12 of the 1703 Regulations, and a summary detailing key assumptions and the methodology used to calculate the Project Costs. Include all eligible costs that you have paid and expect to pay and that are directly related to the Project. Also include costs for escalation and contingencies in this calculation. Distinguish between eligible and ineligible Project Costs as set forth in Section 609.12 of the 1703 Regulations.

6. **Letters of Interest**: Provide a letter of interest for all parties named in Section I.A.

## E. Technical Information

Provide a top-level technical Project description, including the design, engineering, construction, and operations and maintenance phases of the Project, including:

1. **Description of Project Design**: A description of the basic processes involved in the Project design.

2. **Description of New or Significantly Improved Technology**: A detailed description of the New or Significantly Improved Technology to be used in the Project, and a description of how and why the technology is new or significantly improved compared to technology already in general use in the commercial marketplace in the United States.

3. **Sketches:** Conceptual level sketches and details outlining general plant layout, process and materials flows, and operating parameters and throughputs for key processes.

4. **Critical Path Agreements Status**: The status of critical path contracts and agreements, such as a Front-end engineering agreement, technology license and teaming agreements, Engineering, Procurement and Construction ("**EPC**") contract, long-lead contracts, feedstock agreements, and plant off-take or sales agreements.

5. **Planning Documents**: Key planning documents for the Project such as the construction plan, operation and maintenance plan, waste disposal plan, and preliminary risk management plan.

6. **Acquisition Strategies**: Raw material, equipment, and component supply chain acquisition strategies.

7. **Attachment C**: A completed copy of Attachment C, Summary Lifecycle GHG Emissions Data Worksheet.

## F. Legal and Regulatory Information

1. **Timelines for Regulatory Approval**: Provide timelines for receipt of all required regulatory approvals.

2. **Status of Required Permits, etc.**: Provide the status of any required federal, state, or local environmental permits, approvals, or reviews.



AMERICAN OVERSIGHT

3. **Pending Investigations**: Provide a summary of any pending or threatened (in writing) action, suit, proceeding, or investigation by a governmental authority, of any kind, including any action or proceeding by or before any governmental authority, that relates to the Project or to the Applicant, any Project Sponsor, any Principal, or the anticipated Borrower, and the status of any appeals.

## G. Business and Financial Plans

1. **Business Plan**: Provide a description of the following elements of the Applicant's business plan for the Project:

   a) Market analysis;

   b) Feedstock (if applicable);

   c) Off-take or sales agreements; and

   d) Estimate of the number of construction jobs and permanent jobs expected to be created or retained in the United States if the Project were to proceed as proposed in the Application.

2. **Financial Plan**: Provide a description of the following elements of the Applicant's proposed financial plan for the Project:

   a) The term sheet for the Guaranteed Obligation;

   b) The amount of expected equity investments (identify participants and level of participation, if applicable);

   c) The preliminary funding plan for the Guaranteed Obligation, including the total amount for (i) working capital financing, (ii) medium-term financing for machinery and equipment and (iii) longer-term financing for the site and facility;

   d) The timing of expected equity contributions and debt funding;

   e) The timing of repayment of expected debt funding;

   f) Whether the Project will benefit directly or indirectly from certain other forms of federal support, such as grants or other loan guarantees from federal agencies or entities, including DOE, federal agencies or entities as a customer or off-taker of the Project's products or services, or other federal contracts, including acquisitions, leases and other arrangements, that support the Project; and

   g) Other non-federal governmental (including state) incentives or other assistance on which the Project relies, including grants, tax credits and other loan guarantees to support the financing, construction and operation of the Project. Indicate whether any such incentives or assistance are subject to clawback and the circumstances under which a clawback could occur.

## H. Application Certifications



AMERICAN OVERSIGHT

EXT-18-2615-D-000020

1. **Lobbying, Debarment, and Related Certifications and Assurances**: In submitting an Application for a loan guarantee under Title XVII, Applicants must provide certain certifications and assurances contained in the form entitled "Certifications for Use with Applications for Department of Energy Loan Guarantees under title XVII of the Energy Policy Act of 2005" which form may be downloaded from the Program Website: http://energy.gov/sites/prod/files/Certifications%20for%20Use%20with%20Doe%20Loan%20Guarantees.pdf

2. **Applicant Validation Statement**: Provide a written statement that, based on the Project information provided by the Applicant, the Applicant attests that there is a reasonable prospect that the guaranteed portion of the Guaranteed Obligation and any other Project debt will be repaid on time and in full (including interest) from Project cash flow according to the terms proposed in the Application.

3. **Letter of Commitment**: For an Application to be considered under this Solicitation, Part I must include a letter of commitment signed by an authorized representative of the Applicant in the form set forth on the final page of Attachment A – Part I Submission.

4. **Penalty of Perjury Statement**: The following certification must be included with each Application:

   "The undersigned certifies that the data and information submitted and the representations made in this Application and any attachments to this Application are true and correct, to the best of the Applicant's knowledge and belief after due diligence, and the Applicant has not omitted any material facts. The undersigned further certifies that [s]he has full authority to bind the Applicant.

   _____
   Applicant (Organization Name)

   _____
   Name of Applicant's Authorized Officer
   (will fulfill on-line certification)

   _____
   Signature of Authorized Officer
   (for paper copy only)

   _____
   Title of Authorized Officer
   Applicant (Organization Name)

   _____
   Date"



AMERICAN OVERSIGHT
EXT-18-2615-D-000021

[SAMPLE LETTER OF COMMITMENT]

[DATE]

Executive Director
U.S. Department of Energy, Loan Programs Office
Attn: Advanced Nuclear Energy Projects Applications
1000 Independence Avenue, SW
Washington, DC 20585

Dear Director:

This letter confirms our intent to seek a loan guarantee pursuant to Solicitation No. DE-SOL-0007791, dated December 10, 2014 (the "**Solicitation**"). We have met all mandatory requirements as specified in the Solicitation including all attachments. Our Part I submission Application Fee was wired as per your instructions on xx/xx/201_.

We intend to submit our complete Part II submission on or before the due date for the [specify round by number and/or Part II submission due date] round of Part II reviews as set forth in Section IV.A of the Solicitation. Based on the Application process described in the Solicitation, we are prepared to close the financing on or about xx/xx/201_.

If we decide to withdraw from consideration for a loan guarantee at any time, we will notify DOE in writing of that decision as soon as possible.

Sincerely,

_____
Signature of Authorized Officer
[Name]



AMERICAN OVERSIGHT

Subject to the due dates set forth in Section V.A of the Solicitation, the Part II submission may be filed at any time after DOE invites an Applicant to submit its Part II submission. The Part II submission consists of the items summarized herein and in Attachment B as well as other information that may be requested to facilitate DOE's continued due diligence review. Projects eliminated by any of the requirements set forth in Part II of this Attachment A will not receive any further consideration.

At any time after delivery of a Part II submission, to the extent that there are any material deviations from the information provided to DOE in such Part II submission, the Applicant must notify DOE no later than three (3) business days after becoming aware of any such change by requesting approval from DOE to update their Part II submission via the Application Portal. Applicant must provide DOE with updated information via the Application Portal no later than ten (10) business days after receiving notice from DOE to Applicant of approval to re-open Applicant's Application.

Responses are to be provided on PDF or Excel documents uploaded through the Application Portal. **Uploaded documents must indicate clearly the section and subsectiou of the Part II requirement to which the information on the documents pertains.**

## I. Part II Submission

### A. Option to Restrict Disclosure and Use of Certain Data

Section VII.D of the Solicitation sets forth the steps an Applicant must take in order to restrict the use and disclosure of certain data submitted in the Application. In order to restrict the use and disclosure of certain data submitted in Part II of the Application (to the extent permitted by applicable law) the Applicant must upload a separate page containing the legend set forth in Section VII.D.1 of the Solicitation. If the Applicant does not want to restrict thc use and disclosure of any data submitted in the Application the Applicant must upload a separate page containing the following statement: "Applicant does not identify any data the use and disclosure of which is to be restricted."

### B. Updates, Changes, and Additions to Part I Submissiou

Update the information in the Part I submission to the extent and information in the Part I submission has changed from the information previously submitted. Provide a detailed description of all material amendments, modifications, and additions to the information provided in Part I of the Application, including any changes in the Project's financing structure or other terms, the rationale for such changes and the expected impact on the Project. Provide any and all updated audited financial statements since the submission of Part I of the Applicant and Project Sponsors (including new parties joining the Project since the Part I submission).

### C. Submission Index

Provide an index of all of the requirements contained in this Solicitation and in Section 609.6 of the 1703 Regulations and where in your Application submissions, including Parts I and II, these requirements are addressed.

### D. Project Description

1. **Detailed Total Cost:** Provide a detailed estimate of Project Costs in accordance with generally accepted accounting principles and practices. Include a breakdown by cost category, year of



AMERICAN OVERSIGHT

expenditure and basis for amounts, and include a description of the methodology and key assumptions used to make each estimate. Also include costs for escalation and contingencies, and indicate whether each cost is firm or subject to change. Distinguish between eligible and ineligible Project Costs as set forth in Section 609.12 of the 1703 Regulations.

2. **State and Local Support**: Describe the status of potential and actual forms, amounts, and conditions of state and local support for the Project. Provide timelines for such assistance.

3. **Project Location**: Identify the proposed location in the United States and the rationale for the site location. An Applicant proposing more than one location for a Project must set forth in its Application its justification for siting the Project in more than one domestic location.

4. **Effect on Anthropogenic Emissions**: Describe how and to what measurable extent the Project avoids, reduces, or sequesters anthropogenic emissions of greenhouse gases, including how to measure and verify those benefits.

## E. Technical Information

1. **Key Contracts and Agreements**: Provide a top-level description, schedule, current status, and drafts or executed copies of all critical path contracts and agreements relevant to the investment, design, engineering, financing, construction, startup, commissioning, shakedown, operation, and maintenance of the Project, including:

   a) EPC contract(s);

   b) Long-term contracts for materials, components and equipment to be used in the Projcct;

   c) Any leases, operating, or maintenance contracts; and

   d) Any additional relevant agreements or commitments.

   If drafts or executed copies of any of the foregoing contracts and agreements are unavailable, provide a detailed description of such contracts and agreements, including all key terms and counterparties, and indicate when copies of such contracts and agreements will be available.

2. **Engineering and Construction Plans**: A detailed description of the engineering and design contractor(s), EPC contractor(s), equipment supplier(s), and construction schedules for the Project.

   a) For each engineering and design contractor, EPC contractor and equipment supplier to be involved in the Project, describe their major activities as linked to specified cost milestones and performance guarantees, as well as performance guarantees, performance bonds, liquidated damages provisions, and equipment warranties to be provided.

   b) Describe the following:

      (i) The extent to which all required contractors are engaged; and

      (ii) The extent to which pre-construction design has been completed.

   c) Describe each contractor or supplier's experience and qualifications as related to the Project.



AMERICAN OVERSIGHT

3. **Key Site Components**: Describe the key site components of the Project and risks associated with their availability (e.g., water, electricity, gas, or other utilities). Describe site access (roads, highway, and rail) including rights-of-way, easements, and logistical considerations.

4. **Operation Costs**: Provide an estimate of operation costs on an annual basis.

5. **Project Plan**: Provide a comprehensive Project plan that will guide design, engineering, and construction of the Project, including a description of:

   a) Prior successful implementation of similar project plans for projects of this scale by the Applicant or any Project Sponsor (Applicants that are not able to include examples of successful implementation of similar project plans for projects of this scale should provide a detailed description of the facts that they believe are sufficient to demonstrate to DOE that they have the expertise that would be evidenced in examples of successful implementation of similar project plans for projects of this scale. DOE will determine, in its sole and final judgment, whether the experience described shows sufficient expertise);

   b) Each step of the proposed process;

   c) Fully sourced or cited material and energy balance, including system simulation for processes, using industry standard software;

   d) The process for selecting an EPC firm, if applicable, or the internal resources used to serve this function;

   e) Equipment requirements;

   f) Rights or licenses to use processes proposed;

   g) An integrated schedule or Project work plan that encompasses time periods for design, procurement (including long-lead procurements), construction (including mobilization, testing and start-up), and commissioning. The Project shall identify any Project dependencies such as the timing of land-use agreements, environmental permits, or licenses, or physical improvements such as utility tie-ins.

   h) Minimum design specifications in which process flow diagrams are coupled to preliminary cost estimates.

   i) Project management tools, including Gantt charts, resource-based scheduling or other methods to assess and track progress;

   j) Staffing plans, including identification of costs and resources to design, engineer, construct, and operate the Project;

   k) Project risks and mitigation strategies, including risk related to scale-up, construction, performance, etc. and the potential Project impact and mitigation of such risks; and

   l) Contingency plans to address cost overruns and schedule slippage.



AMERICAN OVERSIGHT

6. **Operating and Maintenance Plans**: Provide the following:

   a) The plant operating plan, proposed providers, expected staffing requirements, anticipated parts inventory, major maintenance schedules, estimated annual downtime and any performance guarantees aud related liquidated damages provisions;

   b) A description of the plans for commissioning and initial operations, taking into account the construction schedule, the establishment of material supply chains, the hiring, and training of management and operating personnel, logistics, potential bottlenecks, and delays, financing for contingencies and working capital;

   c) A description of any plans for expanding capacity over initial operations and the Applicant or the Project Sponsor's experience with comparable ramp-ups; and

   d) A description of the operations and maintenance plans for the Project, including acquisition of critical spares, inventory sources, operations and maintenance procedures, and associated risks.

7. **Engineer's Report**: Provide an independent engineer's report that includes a review, evaluation, analysis, and recommendations in the following areas:

   a) base technology,

   b) Project feasibility;

   c) engineering and design approach;

   d) integrated Project schedule, including the schedule for completion;

   e) cost estimates and technical input to the financial model;

   f) contractual requirements and arrangements;

   g) proposed supply chain;

   h) Project risks, including mitigation activities and milestones;

   i) direct labor requirements during construction and operation;

   j) siting and permitting;

   k) testing and commissioning;

   l) operation and maintenance; and

   m) decommissioning plan and costs.

8. **Decommissioning Plan**: Provide a detailed description of the Project decommissioning, deconstruction, and disposal plans (including any hazardous waste disposal plans), including anticipated costs and arrangements that have been made to ensure that funding will be available as necessary.



AMERICAN OVERSIGHT

## F. Legal and Regulatory Information

1. **Legal Opinions/Material Reports**: Provide a copy of all applicable legal opinions, and other material reports, analyses and reviews concerning the Project.

2. **Permits and Approvals**: Provide a complete list of federal, state, and local permits, licenses, and approvals required to site, construct, implement, and operate the Project, including environmental authorizations or reviews necessary to commence construction. For permits and approvals already received, provide the filing and approval dates and parties involved. For all remaining required permits and approvals, provide documentation validating the filing date and the expected date(s) for obtaining them and describe all additional actions required to obtain such permits and approvals. Explain whether governmental entities (other than DOE) are required to approve the activities of the Applicant contemplated by this Solicitation or described in the Application.

3. **Background and Legal Structure**:

   a) Describe the organizational history, ownership chain, and legal structure (e.g., corporation, partnership, or LLC) of the Applicant and each Project Sponsor.

   b) Include copies of the statutory authorities under which the Applicant and each Project Sponsor were created and copies of the good standing certificates for each such entity.

   c) Provide a current organizational chart showing the Applicant's relationship to each Project Sponsor, the venture and to any subsidiaries or affiliates. Advise if there are any proposed changes to the current organizational structure of the Applicant.

   d) Describe whether the Project will be owned by a subsidiary of the Applicant or directly by the Applicant.

4. **Legal Authority**: Describe the legal authority of the Applicant to carry out the Project activities. Provide supporting documentation.

5. **Litigation and/or Conflicts**: Disclose any current, threatened (in writing), or pending litigation involving the Applicant, a Principal, or, to the Applicant's knowledge, any other relevant party, related to permitting, public involvement, environmental issues, construction defects, fraud, securities fraud, conflict of interest, failure to perform under a local, state or federal contract, or other charges which may reflect on the Applicant's, Principal's, or any Project Sponsor's reputation, financial position or ability to complete the Project.

6. **Potential Environmental Impacts**: Submit a report containing the status of all state and local environmental reviews and an analysis of the potential environmental impacts and risks of the Project in sufficient detail to enable DOE to assess the significance of the environmental impacts and risks and to determine the level of environmental review that will be required. See Attachment B for guidance regarding required environmental information for the NEPA review process.

## G. Business Plan

Provide a business plan that demonstrates the Applicant's expertise, financial strength, and management capability to undertake and operate the Project as proposed.

1. **Outpnt**: Provide a detailed description of the Project's output.



AMERICAN OVERSIGHT

2. **Applicant's Capability**: Describe in detail the capabilities and experience of the Applicant and each Project Sponsor, Principal, contractor, and every other counterparty that the Applicant believes will enable the Project to be successful.

3. **Market Analysis**:

   a) Include an analysis of the current and projected market for the Project's output. Discuss the prevailing economic and demographic trends in the target market, both on a macroeconomic basis and for the Project's output. Identify the market's dependency on tax benefits or other government policy. Provide a justification for revenue projections (price and volume) and costs. Describe the Project's projected customer base and suppliers.

   b) Describe the Applicant's current and potential competitors for the Project's output.

   c) Provide a detailed description of any competitive advantages.

4. **Operating and Market-Related Risks and Mitigation Strategies**: Provide a detailed analysis of the operating and market-related risks associated with the Project (e.g., market factors, price volatility, etc.) and mitigation strategies to be employed (e.g., sales contracts and reserves).

5. **Management Plan**:

   a) Provide a staffing chart indicating the individuals (including position and qualifications) proposed to operate the Project. Provide a description of the management plan of operations to be employed in carrying out the Project, and information concerning the management experience of each officer or key person associated with the Project; and

   b) Describe the role of management in the operation of the Applicant's other businesses, if any.

6. **Supply and Sales Arrangements**:

   a) Provide a detailed analysis of the market for the Project's feedstock and output;

   b) Provide a detailed description of the Project's plans for ensuring an adequate supply of materials, equipment, and components as needed for successful operation. Provide drafts or executed copies of all material supply contracts for the Project;

   c) Provide the Project's forecast for sales capacity and feedstock (availability and costs);

   d) Provide drafts or executed copies of all feedstock agreements and sales contracts or other revenue-generating agreements that will provide revenue for the Project. Provide an analysis of the creditworthiness of counterparties who are party to such agreements; and

   e) Provide copies and detailed summaries of all other material sales and revenue contracts.

7. **Insurance Coverage**: Provide a detailed description of the proposed insurance coverage for the Project, together with a report from an insurance consultant that addresses the appropriateness and adequacy of such coverage.

8. **Growth Plan**: Describe any proposals for expanding the business enterprise beyond the Project.

9. **Jobs Created/Retained**: Provide a brief description of the number and types of jobs expected to be created or retained in the United States if the Project were to proceed as proposed in the



AMERICAN OVERSIGHT

Application. The types of jobs may be expressed using job titles, broad labor categories, or the Applicant's existing practice for describing jobs provided that the descriptions so provided are commercially identifiable. The number of jobs shall be expressed as full-time equivalent, calculated cumulatively as all hours worked divided by the total number of hours in a full-time schedule, as defined by the Applicant. Applicants should include in their narrative the information used to calculate the full-time equivalent figure.

## H. Financial Plan

1. **Financial Statements**: Provide unaudited financial statements for the Applicant for the past two years (or since inception of the Applicant has not been in existence for at least two years), prepared in accordance with generally accepted accounting principles in the United States ("**U.S. GAAP**"). Include all associated notes and describe business and financial interests of controlling or commonly controlled organization or persons, including parent companies, subsidiaries, and other affiliated entities or partners of the Applicant or Project Sponsors.

2. **Project Financial Model and Analysis**:

   a) Include a working financial model (with formulas) with pro-forma financial statements for the Project. List the major assumptions in a separate worksheet within the model.

      (i) Include assumptions and calculations for the proposed tenor of the Guaranteed Obligation, plus two (2) years.

      (ii) Include detailed income statements, balance sheets, cash flow statements, and waterfall statements.

      (iii) Include financial ratios (e.g., interest coverage ratios, fixed charge coverage ratios, debt-to-capital ratios, asset coverage ratios, and working capital ratios (including high and low points)) and other relevant terms in the proposed term sheet. Highlight those periods during construction and operation in which non-compliance with the proposed financial ratios is most likely.

      (iv) Include sensitivity analyses that demonstrate the Project's performance under appropriate stress scenarios, including low sales prices, reduced Project performance, loss of major customers, high input material prices, and the impact of future competing technologies.

      (v) Include cost assumptions based on compliance with the Davis-Bacon Act.

      (vi) Include a complete description of the operational and financial assumptions and methodologies incorporated in the financial model.

   b) The financial analysis should demonstrate that there is reasonable prospect that the Applicant will be able to repay the principal and interest on the Guaranteed Obligation and any other Project debt incurred. Discuss the principal factors that could impair the Applicant's ability to meet its debt service obligations, including the Guaranteed Obligation.

3. **Detailed Financial Plan**: Provide a detailed financial plan for the Project, prepared in accordance with U.S. GAAP.

   a) List all proposed sources of expected equity and debt funding by provider, type, and aggregate amount, and provide a copy of the financial closing checklists for each financing, if available.



AMERICAN OVERSIGHT

b) Describe uses, timing, and amount of expected equity and debt funding.

c) For each party associated with the Project, provide a detailed description of their projected liabilities over the term of the Loan Guarantee Agreement.

d) Include a summary of any funding intended to be procured through the use of special purpose entities. Summarize each tranche of funding (e.g., amount, maturity, amortization schedule, the proposed loan guarantee percentage, and whether it is a fixed- or floating-rate tranche).

e) Include a summary of any funding that will be tax-advantaged debt to which Section 149(b) of the Internal Revenue Code may be applicable. Summarize measures that will be taken to avoid (i) effective subordination of federally guaranteed debt to tax-advantaged debt, (ii) the use of any federal guarantee as collateral to secure tax-advantaged debt, and (iii) any linkage of federally guaranteed debt with tax-advantaged debt.

f) Include a schedule indicating all anticipated short term financing or credit facilities required for on-going operations of the Project, including all working capital facilities, performance bonds and similar forms of financing available to or anticipated to be available to the Project. Describe the nature of the security or collateral that is intended to be made available to secure these working capital and other short term facilities.

4. **Proposed Term Sheet**: Include a proposed term sheet for the Guaranteed Obligation.

5. **Credit History**: Provide the credit history of the Applicant and any business entity owning or controlling a five percent (5%) or greater interest in the Project or the Applicant, the offtaker(s), the feedstock supplier, if applicable, and the EPC contractor. Provide the full name of the entity, address, and date of organization.

6. **Collateral**: Provide a listing, describe, and value all assets associated, or to be associated, with the Project and any other assets that will serve as collateral for the Guaranteed Obligations, including any intellectual property necessary for the operation of the Project. Valuations must be supported by independent, third-party appraisals for existing assets and commercial cost substantiation for assets to be constructed for the purpose of the Project, and in all cases acceptable to DOE. An appraisal of real property must be performed by a licensed or certified appraiser consistent with the Uniform Standards of Professional Appraisal Practice promulgated by the Appraisal Standards Board of the Appraisal Foundation. The appraisal should include information on the useful life of all physical assets expected to serve as collateral, including a depreciation schedule (prepared in accordance with U.S. GAAP).

7. **Consideration of Pari-Passu Status**: Provide information and financing documents regarding any existing senior secured debt of any party providing a guarantee or other credit support.

8. **Preliminary Credit Assessment**: Provide a preliminary credit assessment for the Project from a nationally recognized rating agency.

   a) If the Project will be financed using a corporate financing structure or will benefit from any third-party guarantees, provide a detailed public or private credit assessment of the Borrower and Project Sponsor or such third-party guarantor. Such assessment should take into account the impact of the proposed transaction on the Borrower and Project Sponsor or such third-party guarantor's credit rating and evaluate the Project Sponsor or third-party guarantor's financial viability in the absence of a DOE loan guarantee or any other credit support.



AMERICAN OVERSIGHT

b) If the Project will be financed using a project financing structure, provide a detailed public or private credit assessment of the Project. Such assessment should evaluate the Project in the absence of a DOE loan guarantee or any other credit support.

9. **Other Financial Information**: Include any other information about the Applicant and any Project Sponsor that provides a comprehensive summary of the Applicant or Project Sponsor's business and financial situation, including specific information relevant to analyzing historical cash flow on a secular, normalized basis.

## I. Certifications

1. **Lobbying, Debarment, and Related Certifications and Assurances:** In submitting an Application for a loan guarantee under Title XVII, Applicants must provide certain certifications and assurances contained in the form entitled "Certifications for Use with Applications for Department of Energy Loan Guarantees under title XVII of the Energy Policy Act of 2005" which form may be downloaded from the Program Website: http://energy.gov/sites/prod/files/Certifications%20for%20Use%20with%20Doe%20Loan%20Guarantees.pdf

2. **Applicant Validation Statement:** Provide a written statement and supporting analysis attesting that, based on the information provided to DOE, there is a reasonable prospect that all debt of the Project (including the Guaranteed Obligation) will be repaid on time and in full (including interest) from cash flow generated by the Project and in accordance with the terms proposed in the Application.

   As part of the Project evaluation process, DOE may require that Applicants provide additional certifications or supporting documentation. DOE is not authorized to issue a loan guarantee to any party that is delinquent on federal debt, including federal tax debt.

3. **Penalty of Perjnry Statement:** The following certification must be included with each Application:

   "The undersigned certifies that the data and information submitted and the representations made in this Application and any attachments to this Application are true and correct, to the best of the Applicant's knowledge and belief after due diligence, and the Applicant has not omitted any material facts. The undersigned further certifies that [s]he has full authority to bind the Applicant.

_____
Applicant (Organization Name)

_____
Name of Applicant's Authorized Officer
(will fulfill on-line certification)

_____
Signature of Authorized Officer
(for paper copy only)

_____
Title of Authorized Officer

_____



AMERICAN OVERSIGHT

Date"



AMERICAN OVERSIGHT

EXT-18-2615-D-000032

**Rokebrand, Celtia R. (CONTR)**

**From:** Eckard, J. M <jeckard@firstenergycorp.com>
**Sent:** Friday, February 16, 2018 5:32 PM
**To:** McCormack, Brian
**Cc:** Menezes, Mark;Winberg, Steven;Hynes, Shaylyn
**Subject:** RE: News Release - FirstEnergy to Deactivate Pleasants Power Station in West Virginia

Here's another answer to one of Mr. Menezes' difficult questions: the capacity factor for the Pleasants Power Station in 2017 was 68.56%. That means it ran over two-thirds of the hours throughout the year. My guess was reasonably close. As we speculated though, much of the time the plant was barely covering its marginal cost of production with no contribution to fixed costs. Have a great weekend.

Mike

J. Michael Eckard
Director, Federal Affairs
FirstEnergy
801 Pennsylvania Ave., Suite 310
Washington, D.C. 20004
202.434-8153
202.434-8156 (fax)
(b) (6) (cell)
jeckard@firstenergycorp.com

FirstEnergy

---

**From:** Eckard, J. M
**Sent:** Friday, February 16, 2018 11:26 AM
**To:** 'McCormack, Brian' <Brian.Mccormack@hq.doe.gov>
**Cc:** Menezes, Mark <Mark.Menezes@hq.doe.gov>; Winberg, Steven <Steven.Winberg@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: News Release - FirstEnergy to Deactivate Pleasants Power Station in West Virginia

Thanks to each of you. Call me on my cell (b) (6) if you want to discuss further.

Mike

J. Michael Eckard
Director, Federal Affairs
FirstEnergy
801 Pennsylvania Ave., Suite 310
Washington, D.C. 20004
202.434-8153
202.434-8156 (fax)
(b) (6) (cell)
jeckard@firstenergycorp.com

FirstEnergy



AMERICAN OVERSIGHT

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Friday, February 16, 2018 11:23 AM
**To:** Eckard, J. M <jeckard@firstenergycorp.com>
**Cc:** Menezes, Mark <Mark.Menezes@hq.doe.gov>; Winberg, Steven <Steven.Winberg@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** [EXTERNAL] RE: News Release - FirstEnergy to Deactivate Pleasants Power Station in West Virginia

Thanks for sending Mike.

---

**From:** Eckard, J. M [mailto:jeckard@firstenergycorp.com]
**Sent:** Friday, February 16, 2018 11:20 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: News Release - FirstEnergy to Deactivate Pleasants Power Station in West Virginia

Please share. The release was issued as we spoke. Answers to your questions: 1. 100% supplied by Alliance Resources from a West Virginia mine and 2. Pleasants is a non-union plant. (I stand corrected.) Thanks. I'll likely give you another call early next week.

Mike

J. Michael Eckard
Director, Federal Affairs
FirstEnergy
801 Pennsylvania Ave., Suite 310
Washington, D.C. 20004
202.434-8153
202.434-8156 (fax)
(b) (6) (cell)
jeckard@firstenergycorp.com

FirstEnergy

---

**From:** FE News
**Sent:** Friday, February 16, 2018 11:02 AM
**Subject:** News Release - FirstEnergy to Deactivate Pleasants Power Station in West Virginia

*The attached news release was distributed to the media at 11:00 a.m.*

---

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**



AMERICAN OVERSIGHT

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If yon have received this communication in error, please notify us immediately, and delete the original message.**



AMERICAN OVERSIGHT

**Flores, Paola (CONTR)**

**From:** Moul, Donald A <dmoul@firstenergycorp.com>
**Sent:** Monday, March 26, 2018 4:12 AM
**To:** Dowling, Michael J.
**Cc:** Winberg, Steven;Mendenhall, Kelley E
**Subject:** Re: [EXTERNAL] JET presentation

Thanks Steve!

I've forwarded this j formation to our advisors that are dealing with potential asset sales or investments. We will see if it progresses. I really appreciate the lead.

Regards,
Don

Don Moul
President & CNO
FirstEnergy Solutions Generation Companies
Work: 330-315-6800
Cell: (b) (6)

> On Mar 25, 2018, at 11:39 PM, Dowling, Michael J. <dowlingm@firstenergycorp.com> wrote:
>
> Thanks, Steve. Much appreciated.
>
> Michael J. Dowling
> Senior VP, External Affairs
> FirstEnergy
> 330-384-5761 office
> (b) (6) mobile
>
>> On Mar 22, 2018, at 2:57 PM, Winberg, Steven <Steven.Winberg@hq.doe.gov> wrote:
>>
>> Don, Mike and Kelly
>>
>> First, thank you for meeting with DOE a few weeks ago. I was disappointed to hear the news about Pleasants since I started both of those units early in my career.
>>
>> I sat in on a presentation by a Chinese firm called JET that has an ammonia-based process for SOx control that produces a fertilizer product with no liquid waste stream.
>> They claim that they will build and operate and will consider build, own and operate.
>> Neither DOE nor I are endorsing this technology but I did recall the challenges at Bruce Mansfield (from my days at CONSOL) and thought that I would pass this along to you.
>> JET's contact info is in the attached presentation.
>>
>> All the best,
>>



AMERICAN OVERSIGHT

>> Steven Winberg
>> Assistant Secretary
>> Office of Fossil Energy
>> Department of Energy
>> 1000 Independence Avenue, SW
>> Washington, DC 20585
>> 202 586 6660
>>
>>
>> <170316 JET - DOE presentation - Final.pptx>

---

The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.



AMERICAN OVERSIGHT

## Flores, Paola (CONTR)

**From:** Winberg, Steven
**Sent:** Thursday, March 22, 2018 2:57 PM
**To:** dmoul@firstenergycorp.com;mendenhallk@firstenergycorp.com;dowlingm@firstenergycorp.com
**Subject:** JET presentation
**Attachments:** 170316 JET - DOE presentation - Final.pptx

Don, Mike and Kelly

First, thank you for meeting with DOE a few weeks ago. I was disappointed to hear the news about Pleasants since I started both of those units early in my career.

I sat in on a presentation by a Chinese firm called JET that has an ammonia-based process for SOx control that produces a fertilizer product with no liquid waste stream.
They claim that they will build and operate and will consider build, own and operate.
Neither DOE nor I are endorsing this technology but I did recall the challenges at Bruce Mansfield (from my days at CONSOL) and thought that I would pass this along to you.
JET's contact info is in the attached presentation.

All the best,

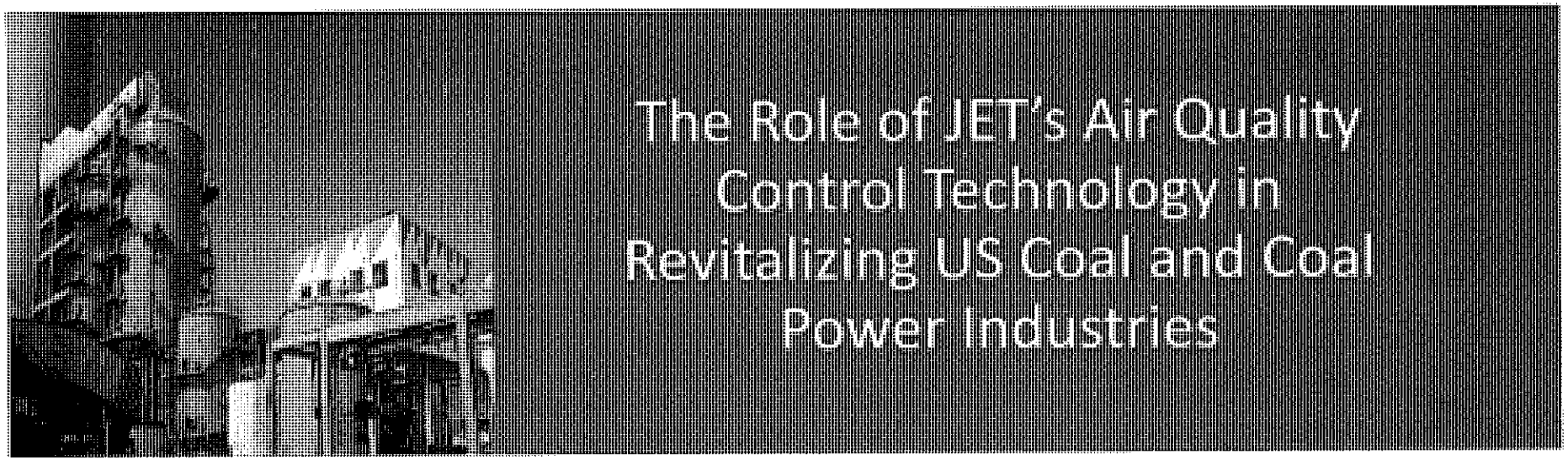
Steven Winberg
Assistant Secretary
Office of Fossil Energy
Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
202 586 6660



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

JET
Jiangnan Environmental Technology



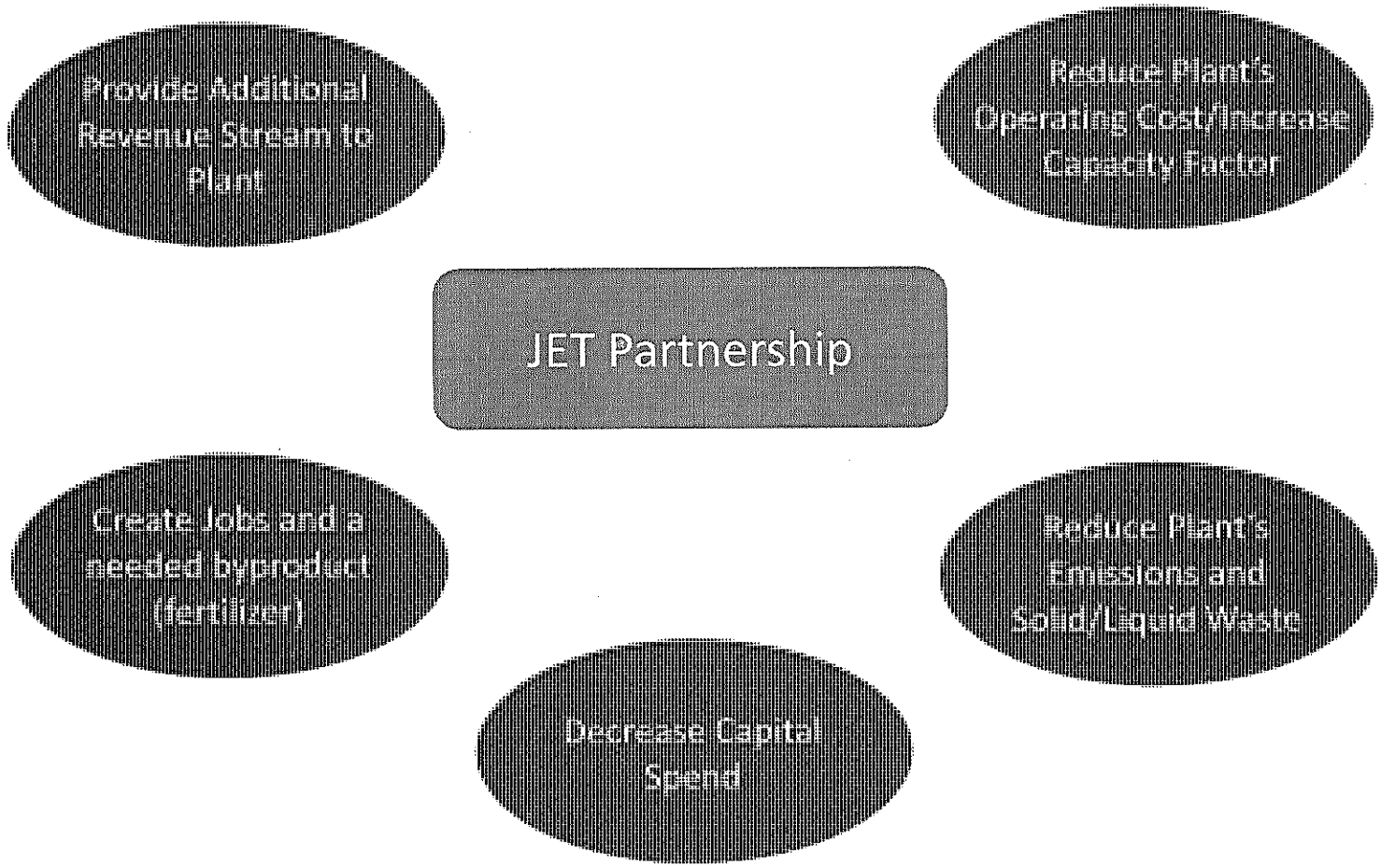
# The Role of JET's Air Quality Control Technology in Revitalizing US Coal and Coal Power Industries

March 16th, 2018

EXT-18-2615-D-000039

AMERICAN OVERSIGHT

# Alternative to closing/shuttering coal plants

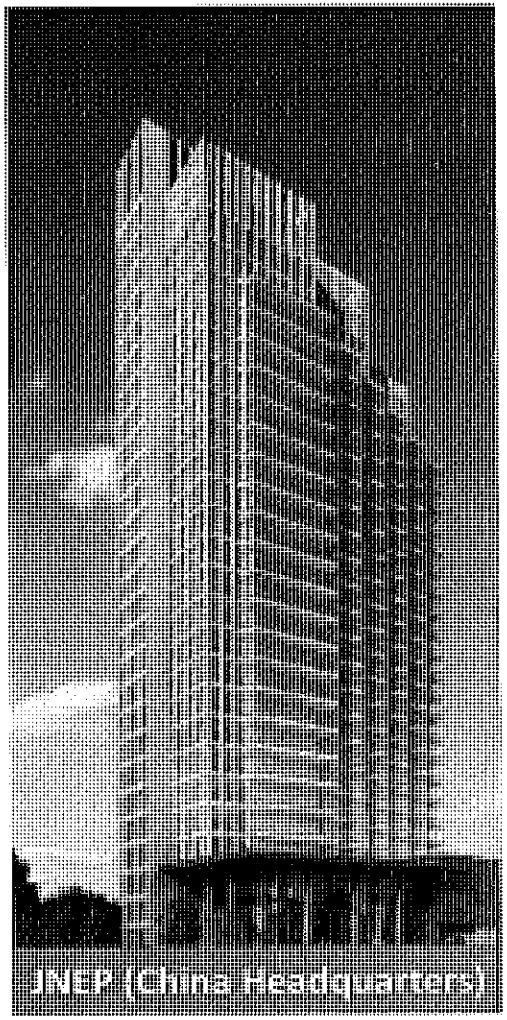



**JET's mission is to partner with coal plants to help achieve long term viability**

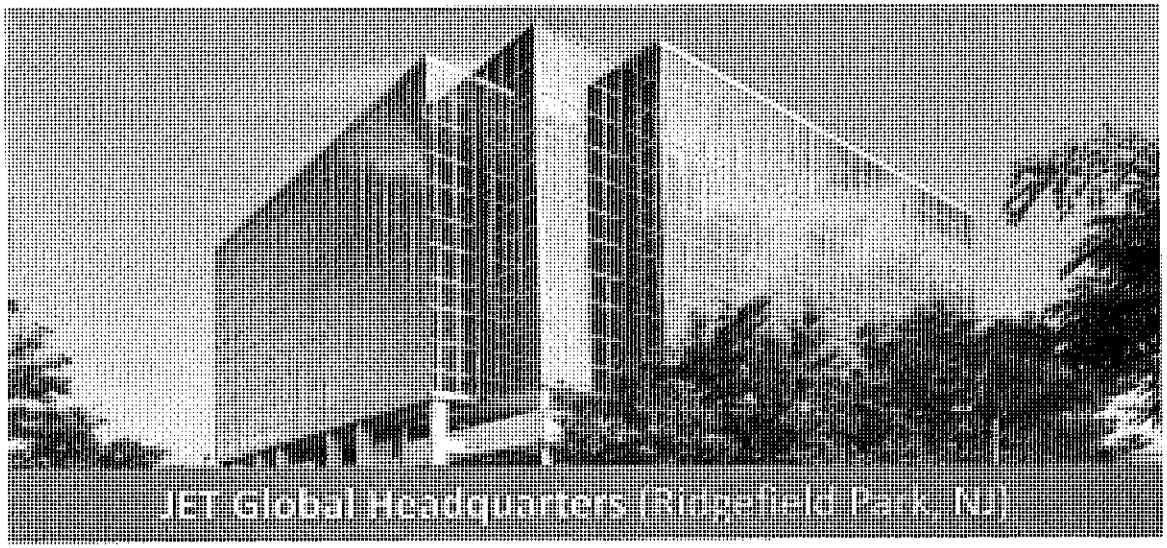
EXT-18-2615-D-000040

AMERICAN OVERSIGHT

# Introduction to JET



JNEP (China Headquarters)



JET Global Headquarters (Ridgefield Park, NJ)

**Global leader with 80% market share in Ammonia-Based Desulfurization**

65 patents and patent applications

150+ projects with more than 300 installed units



EXT-18-2615-D-000041

AMERICAN OVERSIGHT

# Qualifications and Awards

- ☑ Grade A Design Qualification in Environmental Protection Projects
- ☑ Grade A Design Qualification in Chemical Engineering Projects
- ☑ Grade A Operation Qualification for Environmental faculties
- ☑ Contract Qualification for Environmental Projects
- ☑ Certificate of High and New Tech Enterprises
- ☑ ISO 9001 Quality Management System
- ☑ ISO 14001 Environmental Management System
- ☑ OHSAS 18001 Occupational Health and Safety Management System

EXT-18-2615-D-000042

AMERICAN OVERSIGHT

# 20 Year History Ammonia Based FGD

| | Year | Features | $NH_3$ recovery | $SO_2$ emission ppm | Total dust lb/MMSCF | Performance |
|---|---|---|---|---|---|---|
| 1st Gen | 1998 | Basic $NH_3$ based deSOx | not controlled | ~ 70 | | Meets $SO_2$ emission limit |
| 2nd Gen | 2010 | $NH_3$ based deSOx with $NH_3$ recovery control | ≥ 97% | < 35 | | Meets HG2001-2010 standard |
| 3rd Gen | 2013 | Fine PM control | ≥ 98% | < 17.5 | ≤ 4.72 | Meets GB13223-2011 special emission limit |
| **4th Gen** | **2015** | **Ultrasound-enhanced deSOx and PM-removal integration** | **≥ 99%** | **< 12** | **≤ 1.18** | **Meets ultra-low emission limit** |

**Performance:**

- $SO_2$ emission < 12 ppm
- Particulate Matter Emissions < 1.18 lb/MMSCF
- Ammonia Slip < 3 ppm
- Ammonia Recovery Rate > 99%

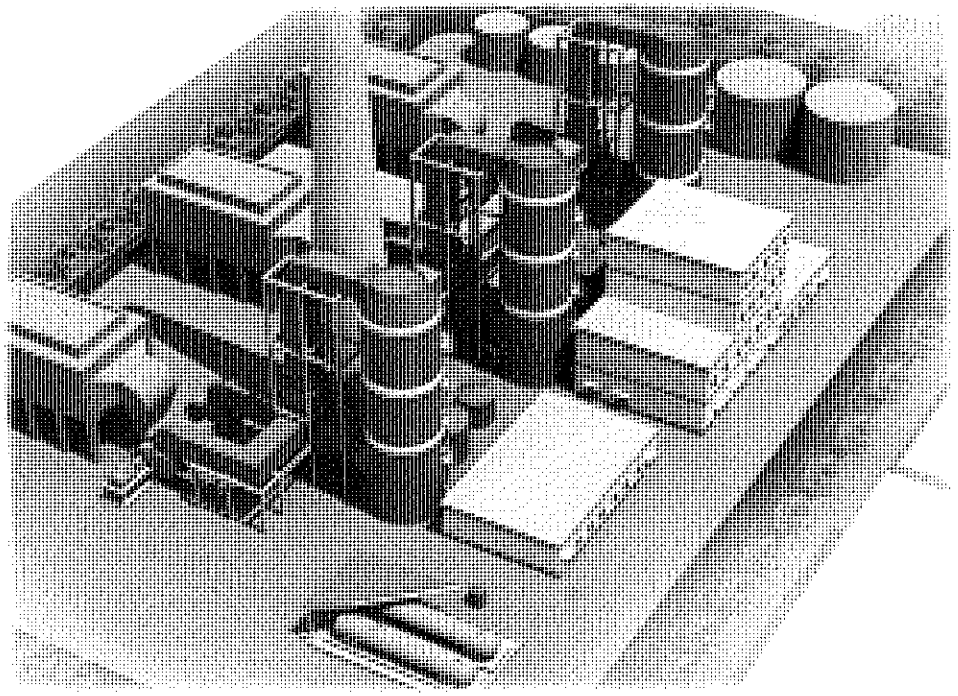
**Over 300 units installed**

EXT-18-2615-D-000043

AMERICAN OVERSIGHT

# Advantages of Ammonia Based FGD Technology

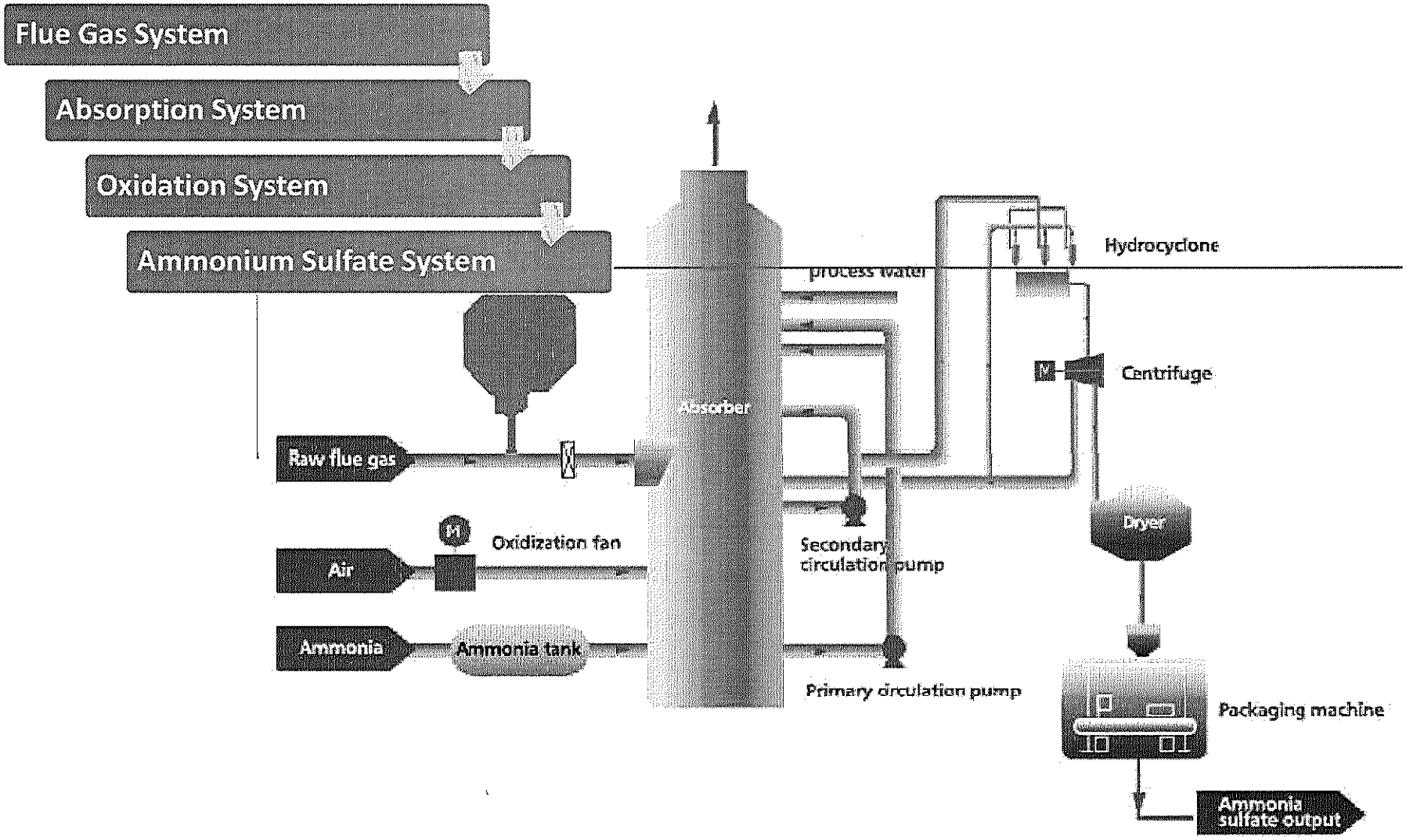
- High $SO_2$ removal efficiency: 99% or higher
- Environmentally friendly: no waste water, solid waste or additional $CO_2$ emissions
- Extra profit: produce 3.8 ton fertilizer per 1 ton ammonia
- High turndown ratio: 30 – 110%
- Favorable economics: less power consumption & operating cost



EXT-18-2615-D-000044

AMERICAN OVERSIGHT

# Technology:




EXT-18-2615-D-000045

AMERICAN OVERSIGHT

# Why Ammonia FGD is a Better Choice than Limestone Process?

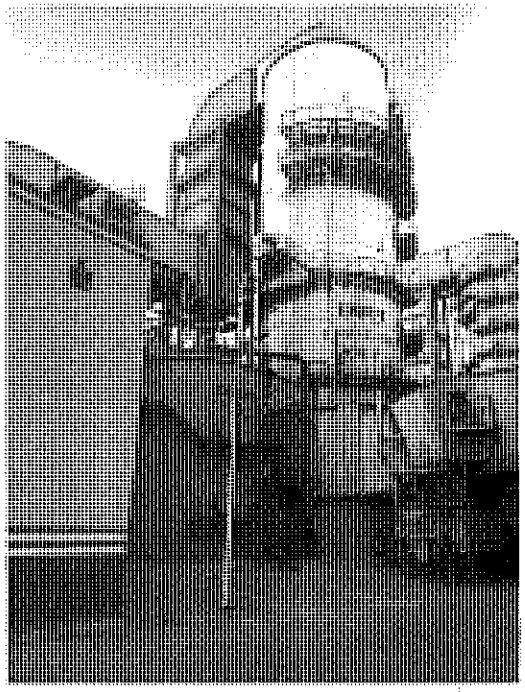
| | Limestone Process | EADS Process |
|---|---|---|
| **Absorbent** | Limestone | Ammonia |
| **By-Product** | Gypsum | Ammonium Sulfate Fertilizer |
| **$SO_2$ Removal Efficiency** | ≥ 95% | ≥ 99% |
| **Waster Water** | 55 lb/hr / MW | None |
| **$CO_2$ Emissions** | 0.7 t/ t $SO_2$ Removed | None |
| **Power Consumption** | Base | 35-50% Less than Base |
| **Operating Cost** | Base | Negative (Makes Profit) |

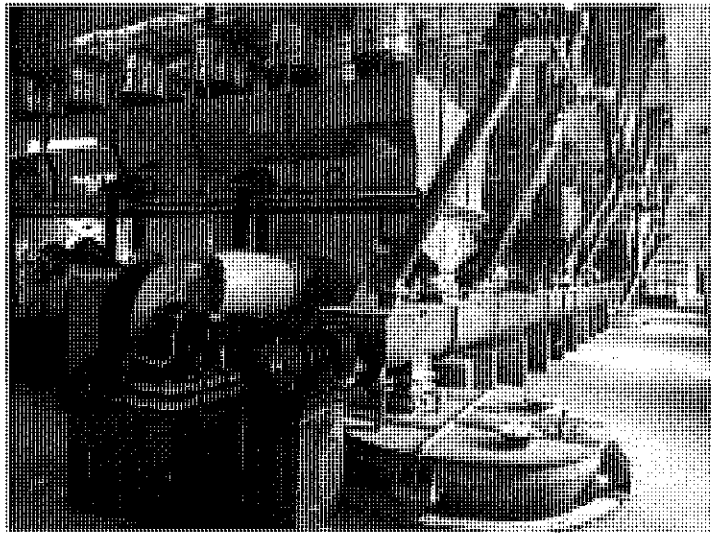
EXT-18-2615-D-000046

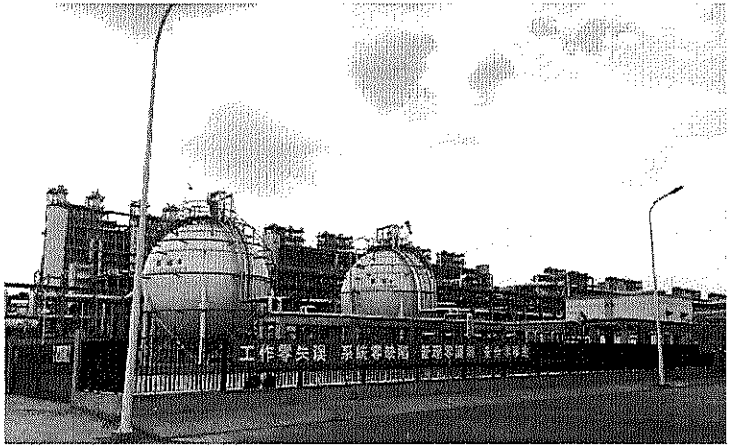
AMERICAN OVERSIGHT

# Project Pictures – Shenhua Coal Plant









EXT-18-2615-D-000047

AMERICAN OVERSIGHT

# Fertilizer Outlook

"Application of Ammonium Sulfate on diverse crops and growing demand for sulfur as a secondary nutrient are large drivers of the growth in North America. Growing use on specialty crops is a key driver of growth, and blending ammonium sulfate with other nutrients such as urea for additional nitrogen content has also increased."

-Green Markets Research Report

"As sulfur becomes more and more a factor in cropping systems, there continues to be a need to satisfy the demand with dry fertilizer formulations. The number one choice for sulfur in combination with nitrogen is ammonium sulfate and all interviewees believe this desirability based on economic utility will continue in the foreseeable future."

-Green Markets Research Report

EXT-18-2615-D-000048

AMERICAN OVERSIGHT

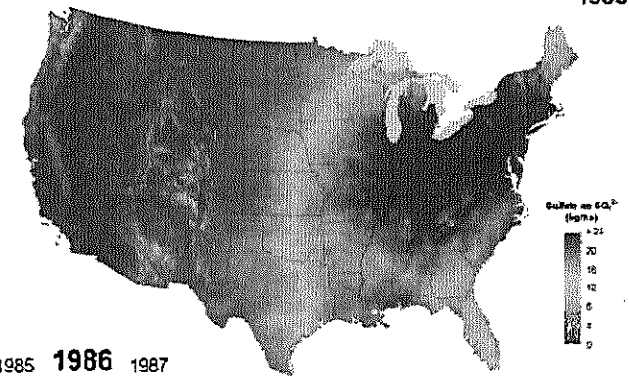
# Fertilizer Outlook

**Global Demand of Nitrogen Base Fertilizer:**
**121.254 M Short Tons**

Agricultural Supplies Market Share:
Chemical Companies Have 2/3 Nitrogen and Sulfur
Three Giant Companies Control 40%

Global Seed Market Share:
Chemical Companies Have Huge Presence
Three Giant Companies Control 50%

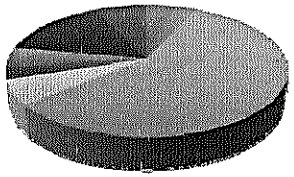
**Sulfate ion wet deposition**
**1986**



1985 **1986** 1987

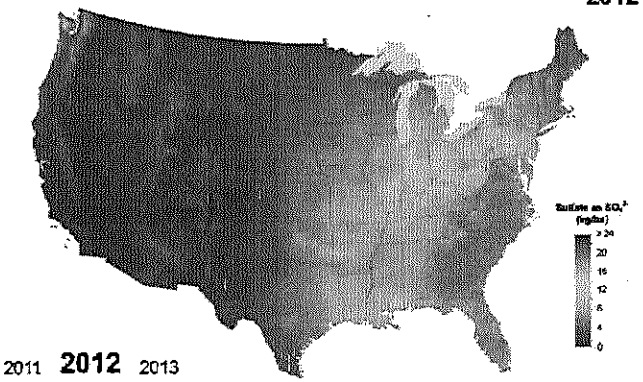
National Atmospheric Deposition Program/National Trends Network
http://nadp.sws.uiuc.edu

## Global Capacity of Nitrogen Fertilizer (%)



- Ammonia Direct Application
- Urea
- Calc. Amm. Nitrate
- Other Nitrogen
- Other Nitrogen Phosphate
- Ammonium Sulfate
- Ammonium Nitrate
- Nitrogen Solutions
- Ammonium Phosphate
- N. P. K. Compound

**Sulfate ion wet deposition**
**2012**



2011 **2012** 2013



EXT-18-2615-D-000049

(b) (4)

AMERICAN OVERSIGHT

EXT-18-2615-D-000050

AMERICAN OVERSIGHT

# Case Study 1

(b) (4)

EXT-18-2615-D-000051

AMERICAN OVERSIGHT

# Other Case Studies

(b) (4)

EXT-18-2615-D-000052

AMERICAN OVERSIGHT

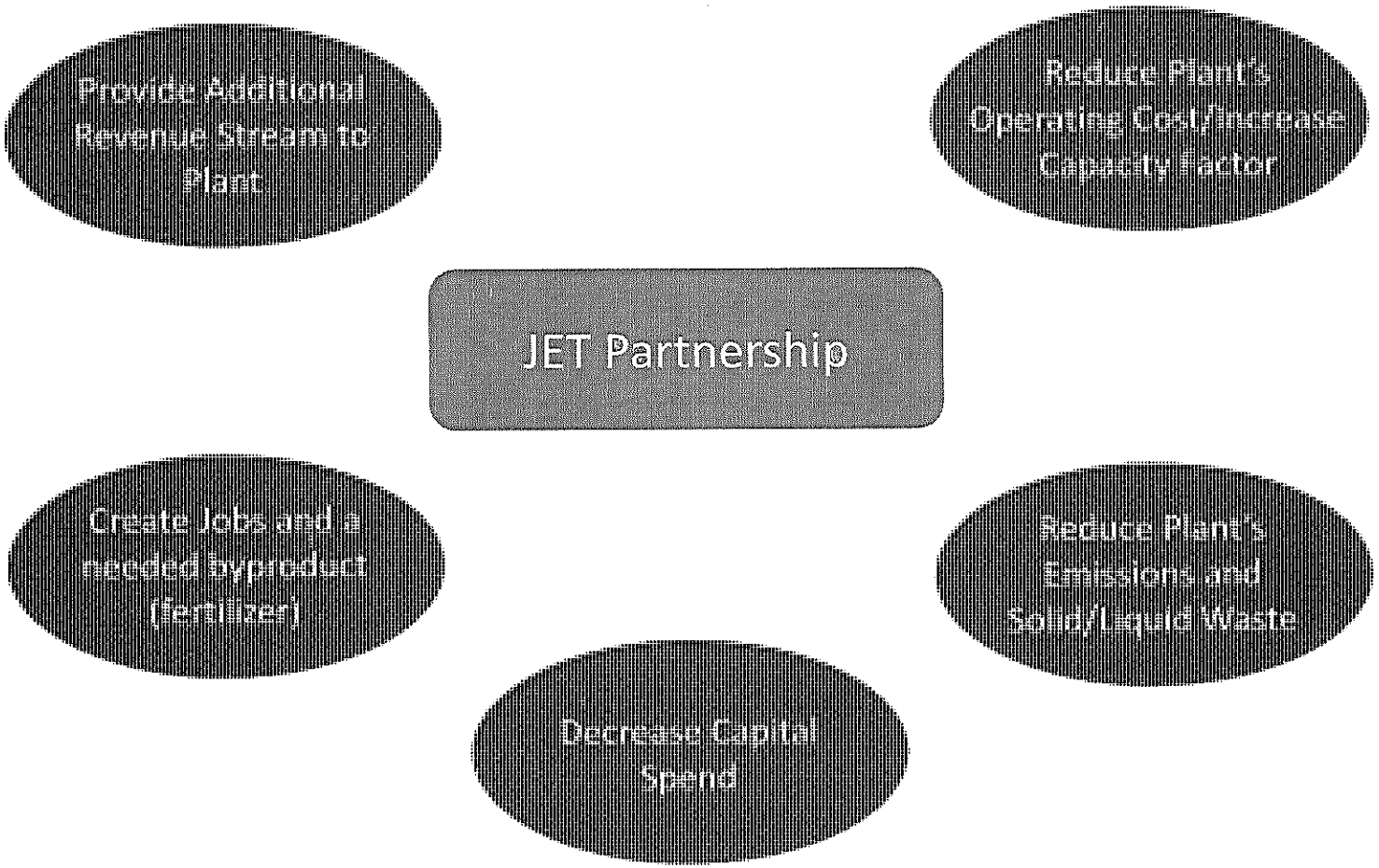
# Environment Impact from EADS

- The ultra low emission standard in China was developed with the objective to make coal fired plants emissions as clean as natural gas fired plants
  - JET technology allows plants to meet ultra low emission limits
- JET's technology can be used as the first stage in a carbon capture process
- JET is dedicated to eliminating air pollution and improving the living environment through our advanced technology

EXT-18-2615-D-000053

AMERICAN OVERSIGHT

# Alternative to closing/shuttering coal plants




**JET's mission is to partner with coal plants to help achieve long term viability**

EXT-18-2615-D-000054

# Thank You!

Questions?



Jonathan Fernandes, Technology Fellow
Project on Government Oversight
(202) 347-1122
jfernandes@pogoarchive.org
@JonathanFernan

EXT-18-2615-D-000055

**Department of Energy**
Washington, DC 20585

FEB 0 8 2019

Mohammad Aslami
Union of Concerned Scientists
1825 K Street, N.W., Suite 800
Washington, D.C. 20006-6162

Via email to: maslami@ucsusa.org

Re: HQ-2018-01548-F

Dear Mr. Aslami:

This is the final response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

1. All emails, email attachments, or calendar invitations/entries sent or received between (1) political appointees in the Office of the Secretary, Office of Fossil Energy, or Office of Electricity at the U.S. Department of Energy and (2) any representative from Alliance Resource Partners, LP or email addresses ending in "arlp.com."

   Provide records from January 1, 2018 to the present.

2. All emails, email attachments, or calendar invitations/entries sent or received between (1) political appointees in the Office of the Secretary, Office of Fossil Energy, or Office of Electricity at the U.S. Department of Energy and (2) any representative Peabody Energy, Inc. or email addresses ending in "peabodyenergy.com."

   Provide records from January 1, 2018 to the present.

3. All emails, email attachments, or calendar invitations/entries sent or received between Bernard McNamee and any representative from Alliance Resource Partners, LP or email addresses ending in "arlp.com."

   Provide records from January 1, 2018 to the present.

4. All emails, email attachments, or calendar invitations/entries sent or received between Bernard McNamee and any representative from Peabody Energy, Inc. or email addresses ending in "peabodyenergy.com."

   Provide records from January 1, 2018 to the present.

AMERICAN OVERSIGHT

5. All emails, email attachments, or calendar invitations/entries sent or received between Mark Menezes and any representative from Alliance Resource Partners, LP or email addresses ending in "arlp.com."

   Provide records from January 1, 2018 to the present.

6. All emails, email attachments, or calendar invitations/entries sent or received between Mark Menezes and any representative from Peabody Energy, Inc. or email addresses ending in "peabodyenergy.com."

   Provide records from January 1, 2018 to the present.

Your request was assigned to DOE's Office of the Executive Secretariat (ES), Office of Fossil Energy (FE), Office of Electricity Delivery and Energy Reliability (OE), and Office of Policy (OP). DOE started its search on December 7, 2018, which is the cutoff date for responsive documents. DOE located twelve (12) documents responsive to your request. The documents are being released to you as described in the accompanying index.

Upon review, DOE has determined that certain information in the documents should be withheld pursuant to Exemption 6 of the FOIA, 5 U.S.C. § 552(b)(6).

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of mobile telephone numbers, direct work extensions, and personal information. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that the agency is justified in not releasing material that the agency reasonably foresees would harm an interest protected by one of the statutory exemptions. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.



AMERICAN OVERSIGHT

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, a redacted version of the document is being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision, as well as the adequacy of the search, may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal by e-mail to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. The appeal must contain all the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either (1) in the district where you reside, (2) where you have your principal place of business, (3) where DOE's records are situated, or (4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955 or by mail at MA-46/Forrestal Building 1000 Independence Avenue, S.W. Washington, D.C. 20585 for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 30, 2018, letter you were informed your request was placed in the "news media" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your request for a fee waiver was granted. Thus, no fees will be charged for processing your request.

If you have any questions about the processing of the request or this letter, you may contact Ms. Elizabeth Sullivan or me at:

MA-46/Forrestal Building
1000 Independence Avenue, SW
Washington, DC 20585
(202) 586-5955



AMERICAN OVERSIGHT

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01548-F**

**Final response for Mr. Mohammad Aslami for:**

1. **All emails, email attachments, or calendar invitations/entries sent or received between (1) political appointees in the Office of the Secretary, Office of Fossil Energy, or Office of Electricity at the U.S. Department of Energy and (2) any representative from Alliance Resource Partners, LP or email addresses ending in "arlp.com."**

   **Provide records from January 1, 2018 to the present.**

2. **All emails, email attachments, or calendar invitations/entries sent or received between (1) political appointees in the Office of the Secretary, Office of Fossil Energy, or Office of Electricity at the U.S. Department of Energy and (2) any representative Peabody Energy, Inc. or email addresses ending in "peabodyenergy.com."**

   **Provide records from January 1, 2018 to the present.**

3. **All emails, email attachments, or calendar invitations/entries sent or received between Bernard McNamee and any representative from Alliance Resource Partners, LP or email addresses ending in "arlp.com."**

   **Provide records from January 1, 2018 to the present.**

4. **All emails, email attachments, or calendar invitations/entries sent or received between Bernard McNamee and any representative from Peabody Energy, Inc. or email addresses ending in "peabodyenergy.com."**

   **Provide records from January 1, 2018 to the present.**

5. **All emails, email attachments, or calendar invitations/entries sent or received between Mark Menezes and any representative from Alliance Resource Partners, LP or email addresses ending in "arlp.com."**

   **Provide records from January 1, 2018 to the present.**

6. **All emails, email attachments, or calendar invitations/entries sent or received between Mark Menezes and any representative from Peabody Energy, Inc. or email addresses ending in "peabodyenergy.com."**

   **Provide records from January 1, 2018 to the present.**



AMERICAN OVERSIGHT

DOE's Office of the Executive Secretariat (ES), Office of Fossil Energy (FE), Office of Electricity Delivery and Energy Reliability (OE), and Office of Policy (OP) have completed their search and located twelve (12) documents responsive to your request.

- Two (2) documents *are being released in their entirety.*

- Ten (10) documents *are being withheld in part pursuant to Exemption (b)(6).* Exemption 6 information consists of mobile telephone numbers, direct work extensions, and personal information.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Wednesday, January 10, 2018 12:20 PM
**To:** Krutka, Holly
**Subject:** RE: Beijing Embassy Inquiry

Remember two heads are better than one.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Wednesday, January 10, 2018 3:18 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** RE: Beijing Embassy Inquiry

LOL. No. I'll ask our GGA head to contact them. Maybe we need to meet with both. The other suggestion was Nina Palmer, FYI. Thanks for your prompt help!

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Wednesday, January 10, 2018 2:16 PM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** FW: Beijing Embassy Inquiry

I hope this matches.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov



AMERICAN OVERSIGHT

**From:** Ivy, Robert
**Sent:** Wednesday, January 10, 2018 3:01 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Fu, Helena W (Embassy Beijing) <FuHW@state.gov>
**Subject:** RE: Beijing Embassy Inquiry

Doug,
Helena Fu: FuHW@state.gov
She is the DOE Attaché in Beijing.
V/R
Bob

Robert G. Ivy
Senior Advisor
Office of Fossil Energy
U.S. Department of Energy
Office 202-586-0809
Cell (b) (6)
robert.ivy@hq.doe.gov

---

**From:** Matheney, Doug
**Sent:** Wednesday, January 10, 2018 2:57 PM
**To:** Ivy, Robert <Robert.Ivy@Hq.Doe.Gov>
**Subject:** FW: Beijing Embassy Inquiry

Would you please find out about this and let me know.
Thanks Bob.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Wednesday, January 10, 2018 1:19 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** Beijing Embassy Inquiry

Dear Doug,

I hope all is well. As a reminder, we most recently spoke at the National Coal Council meeting in Alabama. I'm just wondering if you might know who is charged with energy policy at the US embassy in Beijing. I'll be traveling there in March for a workshop on clean coal technologies and we were interested in meeting with embassy officials to discuss clean coal technology collaboration. Thank you for your time.

By the way, I called but was not able to leave a voicemail. Thanks.



AMERICAN OVERSIGHT

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Wednesday, January 10, 2018 12:21 PM
**To:** Krutka, Holly
**Subject:** RE: Beijing Embassy Inquiry

I look forward to it.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Wednesday, January 10, 2018 3:19 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** RE: Beijing Embassy Inquiry

See you then if not before. (b) (6)

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Wednesday, January 10, 2018 2:18 PM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: Beijing Embassy Inquiry

Yes you will, I will be there .
(b) (6)

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov



AMERICAN OVERSIGHT

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Wednesday, January 10, 2018 3:07 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** RE: Beijing Embassy Inquiry

Thanks Doug! I emailed Scott Smouse at the same time and he forwarded the contact information, so I think we're good. Everything going well for you? Will I see you at the next NCC meeting?

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Wednesday, January 10, 2018 1:56 PM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: Beijing Embassy Inquiry

I will find out and let you know.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Wednesday, January 10, 2018 1:19 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** Beijing Embassy Inquiry

Dear Doug,

I hope all is well. As a reminder, we most recently spoke at the National Coal Council meeting in Alabama. I'm just wondering if you might know who is charged with energy policy at the US embassy in Beijing. I'll be traveling there in March for a workshop on clean coal technologies and we were interested in meeting with embassy officials to discuss clean coal technology collaboration. Thank you for your time.

By the way, I called but was not able to leave a voicemail. Thanks.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**



AMERICAN OVERSIGHT

Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.

---

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.

---

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Sent:** Monday, January 15, 2018 8:42 AM
**To:** Matheney, Doug
**Subject:** FW: Secretary Perry at May Board meeting
**Attachments:** 20180110 Rick Perry May 2018 Board invitation.pdf

Dear Doug,

As you may know, Peabody is a member of the World Coal Association, which includes many of the world's leading coal producers. We are very much hoping that Secretary Perry would attend our next Board meeting, which will be in Washington, DC on 16-17 May. Peabody will be taking over the Chairmanship of the WCA at that meeting and we would be very honored if Secretary Perry could provide the opening address, as is explained in the attached invitation. The WCA Secretariat has already sent this invitation and plans to also contact Assistant Secretary Steve Winberg. I wanted to also reach out to you. Is there anything else I can do to ensure that this invitation receives sufficient attention? Thank you for your thoughts on this matter.

Also, thank you on the contact information for the US embassy in Beijing. We were able to successfully set up a meeting. Take care.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Benjamin Sporton <BSporton@worldcoal.org>
**Date:** January 15, 2018 at 7:43:25 AM PST
**To:** Michael Flannigan <mflannigan@peabodyenergy.com>, Skip Stevens <sstephens@congresslaw.net>
**Subject: Secretary Perry at May Board meeting**

Hi both

The attached went last week to Secretary Perry. If you could coordinate following up with his office, that would be much appreciated. I will also send a copy to Steve Winberg who I will email separately.

thanks

Benjamin Sporton
Chief Executive

**World Coal Association | www.worldcoal.org**
t: +44 (0)20 7851 0052 | m: (b) (6)

Follow WCA on Twitter | Read the latest opinion from WCA
Watch WCA on YouTube | Follow WCA on LinkedIn



AMERICAN OVERSIGHT

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT



Honourable Rick Perry
Secretary of Energy
1000 Independence Ave. SW
Washington DC 20585
United States of America

10 January 2018

Dear Mr Secretary

The World Coal Association is the only organisation that represents the coal industry at the international level. For more than 30 years we have worked to demonstrate the fundamental role coal plays in providing affordable and reliable energy in growing modern economies. We also actively work to demonstrate and gain support for the role that modern low emission coal technologies play in meeting environmental objectives.

The next Board meeting of the World Coal Assocation will be held in Washington DC on 16-17 May 2018.

The Board meeting will bring together chief and senior executives of many of the world's largest coal producers and allied companies. It will be an opportunity for us to discuss developments in cleaner coal technology, further develop our strategy our strategy for the deployment of those technologies internationally, including the leading role the United States is now playing in this area.

This meeting will be held in partnership with our leading US-based members, Peabody Energy and the National Mining Association. Peabody's President and Chief Executive Officer Glenn Kellow will be appointed Chairman of the World Coal Association at this meeting.

We would be honoured if you could deliver the opening address at the conference to be held at the National Press Club as part of our Board meeting on 16 May 2018.

I would be very happy to discuss with your office further details of your attendance and would and can be contacted at bsporton@worldcoal.org or on +44 20 7851 0052.

Yours sincerely

Benjamin Sporton
**Chief Executive**

5th Floor, Heddon House
149-151 Regent Street
London, W1B 4JD
United Kingdom

Registered office
as above.

Registered in
England and Wales
No 2947623

T +44 (0) 20 7851 0052

info@worldcoal.org
www.worldcoal.org

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Tuesday, January 16, 2018 5:25 AM
**To:** Krutka, Holly
**Subject:** RE: Secretary Perry at May Board meeting

Will do I

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Tuesday, January 16, 2018 8:07 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** RE: Secretary Perry at May Board meeting

Much appreciated. Please let me know if there's anything else we should do.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Tuesday, January 16, 2018 6:50 AM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: Secretary Perry at May Board meeting

I will make sure it gets into the right hands.
Thank you.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov



AMERICAN OVERSIGHT

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Monday, January 15, 2018 11:42 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** FW: Secretary Perry at May Board meeting

Dear Doug,

As you may know, Peabody is a member of the World Coal Association, which includes many of the world's leading coal producers. We are very much hoping that Secretary Perry would attend our next Board meeting, which will be in Washington, DC on 16-17 May. Peabody will be taking over the Chairmanship of the WCA at that meeting and we would be very honored if Secretary Perry could provide the opening address, as is explained in the attached invitation. The WCA Secretariat has already sent this invitation and plans to also contact Assistant Secretary Steve Winberg. I wanted to also reach out to you. Is there anything else I can do to ensure that this invitation receives sufficient attention? Thank you for your thoughts on this matter.

Also, thank you on the contact information for the US embassy in Beijing. We were able to successfully set up a meeting. Take care.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Benjamin Sporton <BSporton@worldcoal.org>
**Date:** January 15, 2018 at 7:43:25 AM PST
**To:** Michael Flannigan <mflannigan@peabodyenergy.com>, Skip Stevens <sstephens@congresslaw.net>
**Subject: Secretary Perry at May Board meeting**

Hi both

The attached went last week to Secretary Perry. If you could coordinate following up with his office, that would be much appreciated. I will also send a copy to Steve Winberg who I will email separately.

thanks

Benjamin Sporton
Chief Executive

**World Coal Association | www.worldcoal.org**
t: +44 (0)20 7851 0052 | m: (b) (6)

Follow WCA on Twitter | Read the latest opinion from WCA
Watch WCA on YouTube | Follow WCA on LinkedIn



AMERICAN OVERSIGHT

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.

---

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Wednesday, January 31, 2018 1:59 PM
**To:** Krutka, Holly
**Subject:** RE: Fwd: Secretary Perry at World Coal Association Meeting

Thank you.
I really didn't do much I think he was going anyway.
Doug

---

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Date:** Wednesday, Jan 31, 2018, 3:15 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** Fwd: Secretary Perry at World Coal Association Meeting

Thank you for whatever role you played I this.

Holly

Sent from my iPhone

Begin forwarded message:

> **From:** "Almstead, Deidre" <Deidre.Almstead@hq.doe.gov>
> **Date:** January 31, 2018 at 12:28:42 PM CST
> **To:** "HKrutka@peabodyenergy.com" <HKrutka@peabodyenergy.com>
> **Cc:** "Gerdes, Stan" <Stan.Gerdes@hq.doe.gov>, "Goudarzi, Talat" <Talat.Goudarzi@hq.doe.gov>
> **Subject: Secretary Perry at World Coal Association Meeting**
>
> Hi Holly- we would like to confirm Secretary Perry to speak at the World Coal Association board meeting May 16. Is there a specific time you were looking for the Secretary to speak? We have some flexibility with his schedule, however we do have standing meetings so we may need to discuss exact timing of his speech. I also wanted to confirm the conference would be taking place at the National Press Club correct?
>
> Thanks so much!
> Deidre
>
> Deidre Almstead
> Office of the Secretary
> Department of Energy



AMERICAN OVERSIGHT

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Sent:** Thursday, February 01, 2018 9:29 AM
**To:** Matheney, Doug;Janet Gellici - National Coal Council;Kokkinos, Angelos;Sneed, Michelle;Matuszak, Daniel
**Cc:** greg.workman@dom.com;Slone, Deck;Daniels, Jarad;d'Hemecourt, Julia
**Subject:** RE: MEETING REQUEST

Thanks all. I will change my schedule to attend this call, so please schedule it. Is it possible that we can receive the lists of members moving forward and those that are being held up? It could facilitate our discussion of how to proceed.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Thursday, February 01, 2018 9:38 AM
**To:** Janet Gellici - National Coal Council <jgellici@ncc1.org>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Matuszak, Daniel <Daniel.Matuszak@Hq.Doe.Gov>
**Cc:** greg.workman@dom.com; Slone, Deck <DSlone@archcoal.com>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; d'Hemecourt, Julia <JdHemecourt@hunton.com>; Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: MEETING REQUEST

We will try to set this up as soon as possible.

**From:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Date:** Thursday, Feb 01, 2018, 9:S2 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>, Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Matuszak, Daniel <Daniel.Matuszak@Hq.Doe.Gov>
**Cc:** greg.workman@dom.com <greg.workman@dom.com>, Slone, Deck <DSlone@archcoal.com>, Daniels, Jarad <Jarad.Daniels@hq.doe.gov>, d'Hemecourt, Julia <JdHemecourt@hunton.com>, Holly Krutka PhD <hkrutka@peabodyenergy.com>
**Subject:** MEETING REQUEST

I'm writing on behalf of NCC Chair Greg Workman and NCC Vice Chair Deck Slone to request a meeting as soon as possible **next week** to discuss opportunities to expedite the appointment of candidates currently being withheld by DOE.

I was informed yesterday by Dan Matuszak that 97 candidates are now being "rapidly facilitated through the building by the Secretary's office." We appreciate your continued efforts to get this abbreviated group of NCC members appointed as soon as possible.



AMERICAN OVERSIGHT

As you know, in summer/fall 2017 NCC submitted 124 candidates for appointment, 25% of which have been withdrawn for what I've been lead to understand is further review/discussion. The majority of the 27 withheld candidates were unilaterally withdrawn from the package by DOE without the courtesy of an advanced notification or consultation with NCC. We believe a consultative process between DOE and NCC would help advance these remaining candidates in a timely manner.

While I've not been provided with a final roster of who has and has not been included in the 97 rapidly facilitating candidates, based on prior information I believe a number of the withheld candidates are members of NCC's Executive Committee, including Dan Roling with NOVADx Ventures ~ NCC's Finance Committee Chair ~ who is working to open new coal mines in Appalachia ~ an activity which I believe is very much in keeping with the President's energy agenda.

Other withheld candidates are important contributors to the report requested by Secretary Perry on advancing U.S. coal exports. Their appointments to the Council will help speed the completion of that report which has already been delayed due to the beleaguered NCC membership appointment process.

We would like to assist in completing the 2018-2019 appointment process and discuss with you how best to expedite the appointment of these withheld candidates. Please let us know what date/time works best for you next week.

Cheers ~

Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300. WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Sent:** Thursday, April 05, 2018 7:48 AM
**To:** Winberg, Steven
**Subject:** Automatic reply: Doug Farnham contact

Thank you for your email. I am out of the office until Friday, Aprill 6. I will be monitoring emails during my time out of the office, although my response may be delayed.

Holly

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Sent:** Friday, April 06, 2018 2:50 PM
**To:** Doug Farnham
**Subject:** RE: Doug Farnham contact

Thanks Steve and moving you to bcc.

Hi Doug – Originally I was interested in PFBC using coal fines waste. However, I'm also interested in learning more about your CO2 capture technology. Would you be interested in speaking next week? I have quite a bit of availability on Tuesday.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Doug Farnham [mailto:Dfarnham@pfbceet.com]
**Sent:** Thursday, April 05, 2018 10:18 AM
**To:** 'Winberg, Steven' <Steven.Winberg@hq.doe.gov>; Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: Doug Farnham contact

Thank you Steve.

Holly:

I have been a big fan of Occidental Petroleum's use of CO2 for enhanced oil recovery for years, and have also worked for years in developing a clean coal system that can burn coal with very little emissions, and we capture the CO2 using potassium carbonate, a product that OxyChem produces.

Our cost of CO2 capture, using the Benfield CO2 system, is the cost of capital and the potassium carbonate, which can be $10 - $20 per ton, and now with a $35 tax credit this could be a viable product for the EOR market.

If you are interested in discussing, I would be glad to meet you at your office when your schedule permits.

All the best,
Doug Farnham

**Douglas B. Farnham**
**President**
**PFBC Environmental Energy Technology, Inc.**
**1200 Maronda Way**
**Suite 400**
**Monessen PA 15062**
**PH:** (b) (6)



AMERICAN OVERSIGHT

**dfarnham@pfbceet.com**

---

**From:** Winberg, Steven [mailto:Steven.Winberg@hq.doe.gov]
**Sent:** Thursday, April 5, 2018 10:31 AM
**To:** Holly Krutka <hkrutka@peabodyenergy.com>; Doug Farnham <dfarnham@farnham-pfile.com>
**Subject:** Doug Farnham contact

Holly meet Doug. Doug meet Holly.
Holly is interested in PFBC

---

E-mail Disclaimer:
The information contained in this e-mail, and in any accompanying documents, may constitute confidential and/or legally privileged information. The information is intended only for use by the designated recipient. If you are not the intended recipient (or responsible for the delivery of the message to the intended recipient), you are hereby notified that any dissemination, distribution, copying, or other use of, or taking of any action in reliance on this e-mail is strictly prohibited. If you have received this email communication in error, please notify the sender immediately and delete the message from your system.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Sent:** Tuesday, April 17, 2018 6:20 AM
**To:** Matheney, Doug
**Subject:** FW: US Secretary of Energy to Open World Coal Association Conference

Doug – Thanks again for helping us get Sec. Perry to speak at the WCA event. Please note you have to register to attend. Invitation below. Hope to see you there.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Liam McHugh [mailto:LMchugh@worldcoal.org]
**Sent:** Tuesday, April 17, 2018 8:13 AM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** US Secretary of Energy to Open World Coal Association Conference

WORLD COAL ASSOCIATION

# WCA Washington Conference:

*Accelerating Deployment of Low Emission Coal Technology in the US and Globally*

**Date:** 16 May 2018
**Time:** 09:00 – 17:00
**Venue:** National Press Club, Washington D.C



AMERICAN OVERSIGHT

'*Accelerating Deployment of Low Emission Coal Technology in the US and Globally*' is a one-day event on 16 May 2018, that will explore the potential of cleaner coal technologies and will consider the necessary drivers to encourage their widespread deployment.

With a keynote address from **Secretary of Energy Rick Perry**, the conference will provide a platform for multi-stakeholder dialogue proposing commercial and policy drivers to the sustainable use of coal.

Join us to hear from leading voices in government, industry and key global institutions including among others:

- Heidi Heitkamp, US Senator for North Dakota,
- John Barrasso, US Senator for Wyoming
- U.S. Department of Energy,
- U.S. Center for Climate and Energy Solutions,
- Clean Air Task Force,
- U.S. Trade and Development Agency.

RSVP by Monday 14 May

## AGENDA

**08:30 Registration opens**

**09:00 Introduction**

**Session One: Keynote presentations**

An opening address will be provided by United States Secretary of Energy Rick Perry. Secretary Perry will discuss the activities and forward agenda of the Department of Energy, with a focus on the interface with coal. This will be followed by a presentation by U.S. Senator for North Dakota, Heidi Heitkamp, who will discuss her work to find a



AMERICAN OVERSIGHT

bipartisan path forward for coal.

**Panel One – Opportunities for Low-Emission Coal Technologies**

The dynamics of energy in the United States are changing; however, the US remains one of the largest coal producers and consumers. Prominent stakeholders with insights into the local sector will deliver presentations on the role for coal in the US energy system and consider the policy approaches to energy and climate that will be necessary to ensure a sustainable role for coal into the future.

**Panel Two – Delivering Low-Emission Coal Locally and Internationally**

Fossil fuels today provide 81% of the world's primary energy, a percentage not forecast to change significantly for decades to come. A low emission technology pathway for fossil fuels, including coal, is therefore required. Recognising the need to take urgent action to reduce emissions, panellists will discuss the steps they consider necessary to encourage greater deployment of low-emission technology over the coming decades.

**17:00 Close**

If you would like to attend the workshop, please RSVP here

Please note government issued identification will be required for entry.

I look forward to seeing you there.

**Benjamin Sporton**
Chief Executive
World Coal Association



AMERICAN OVERSIGHT

Email: info@worldcoal.org
Tel: +44 (0) 20 7851 0052
www.worldcoal.org

WORLD COAL ASSOCIATION

No longer wish to receive these emails? Unsubscribe

This email was sent to lmchugh@worldcoal.org
*why did I get this?* unsubscribe from this list update subscription preferences
World Coal Association · 5th Floor, Heddon House · 149 - 151 Regent Street · London, London W1B 4JD · United Kingdom

mailchimp

This email has been scanned for spam and viruses by Proofpoint Essentials. Click here to report this email as spam.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Sent:** Friday, April 27, 2018 6:15 AM
**To:** Winberg, Steven
**Subject:** RE: Quick Chat?

That should work. Let me check quickly with our DC folks and I'll send a call in. Thanks for the fast response!

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Winberg, Steven [mailto:Steven.Winberg@hq.doe.gov]
**Sent:** Friday, April 27, 2018 8:11 AM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: Quick Chat?

How about noon?

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Friday, April 27, 2018 8:28 AM
**To:** Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Subject:** Quick Chat?

Hi Steve,

I hope all is well. I'm just wondering if you have any availability today or early next week for a very quick chat with me and one of our DC folks? If so, please let me know some times and I'll send out a call in. It will be short and is just in reference to follow up from some conclusions from the Wye River meeting. Thank you!

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

Peabody



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Sent:** Friday, April 27, 2018 7:13 AM
**To:** Winberg, Steven
**Subject:** RE: Quick Chat?

Invitation sent. Thanks.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Winberg, Steven [mailto:Steven.Winberg@hq.doe.gov]
**Sent:** Friday, April 27, 2018 8:11 AM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: Quick Chat?

How about noon?

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Friday, April 27, 2018 8:28 AM
**To:** Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Subject:** Quick Chat?

Hi Steve,

I hope all is well. I'm just wondering if you have any availability today or early next week for a very quick chat with me and one of our DC folks? If so, please let me know some times and I'll send out a call in. It will be short and is just in reference to follow up from some conclusions from the Wye River meeting. Thank you!

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

Peabody



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Winberg, Steven
**Sent:** Friday, April 27, 2018 9:09 AM
**To:** Krutka, Holly
**Subject:** RE: Technical difficulties

202 586 6660

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Friday, April 27, 2018 12:06 PM
**To:** Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Subject:** RE: Technical difficulties

Steve – What number can we call you on? Sorry.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

---

**From:** Winberg, Steven [mailto:Steven.Winberg@hq.doe.gov]
**Sent:** Friday, April 27, 2018 11:05 AM
**To:** Krutka, Holly <HKrutka@peabodyenergy.com>
**Subject:** RE: Technical difficulties

Enjoying the Musac..

---

**From:** Krutka, Holly [mailto:HKrutka@peabodyenergy.com]
**Sent:** Friday, April 27, 2018 12:04 PM
**To:** Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Subject:** Technical difficulties

Hi Steve – I'm having technical difficulties. Please stand by.

**Holly Krutka, PhD**
Vice President, Coal Generation and Emission Technologies
**Peabody**
Peabody Plaza | 701 Market St. | St. Louis, MO 63101-1826
Office Phone: (314) 342-7833 | Cell: (b) (6)
hkrutka@peabodyenergy.com

**Peabody**



AMERICAN OVERSIGHT

**Department of Energy**
Washington, DC 20585

MAR 1 8 2019

Sam Gomberg
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

Via email to: sgomberg@ucsusa.org

Re: HQ-2018-01436-F

Dear Mr. Gomberg:

This is a partial response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> All emails, email attachments, or calendar invitations/entries sent or received by the following people:
>
> a. Brian McCormack
> b. Mark Menezes
> c. Steve Winberg
> d. Mark Maddox
> e. Sean Plasynski
> f. Bruce Walker
> g. Edward McGinnis
> h. Theodore Garrish
> i. Martin Dannenfelser
> j. Jennifer Loraine
> k. Daniel Simmons
> l. Sean Cunningham
> m. Shaylyn Hynes
>
> Provide records from May 30, 2018 to June 5, 2018.

In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."

AMERICAN OVERSIGHT

Your request was assigned to DOE's Office of the Executive Secretariat (ES); the Office of Fossil Energy (FE); the Office of Congressional and Intergovernmental Affairs (CI); the Office of Public Affairs (PA); the Office of Electricity (OE); the Office of Nuclear Energy (NE); the Office of International Affairs (IA); the Office of Management (MA); the Office of Environmental Management (EM); and the National Energy Technology Laboratory (NETL) to conduct a search of their files for responsive documents. DOE started its search on August 8, 2018, which is the cut-off date for responsive documents. This letter serves as a partial response for OE. DOE is continuing to process your request for additional responsive documents, which will be provided to you in a subsequent final response.

At this time, DOE has located twenty-three (23) documents responsive to your request. These documents are being provided to you as described in the accompanying index.

Upon review, DOE has determined that certain information should be withheld pursuant to Exemptions 5 and 6 of the FOIA, 5 U.S.C. § 552(b)(5) and (b)(6). Additionally, a portion of one (1) document contains an equity which originated with the United States Department of Homeland Security (DHS), and as such we are referring that portion of the document to DHS for their review, pursuant to DOE's FOIA regulations at 10 C.F.R. § 1004.4(f). This portion of the document will be provided in a subsequent response.

Exemption 5 protects "inter-agency or intra-agency memorandums or letters that would not be available by law to a party other than an agency in litigation with the agency." 5 U.S.C. § 552(b)(5). This exemption has been construed to exempt those documents normally privileged in the civil discovery context, such as attorney-client communications, attorney-work product documents, and deliberative process material.

The information withheld under Exemption 5 has been deemed pre-decisional and/or deliberative in nature, including pre-decisional discussions between DOE staff. The DOE may consider these preliminary views as part of the process that will lead to the agency's final decision about these matters. The information does not represent a final agency position, and its release would compromise the deliberative process by which the government makes its decisions. Withholding this information protects against the premature disclosure of proposed policies regarding personnel matters, protects the candor of intra-agency communications, and prevents confusion to the public that could result from disclosing alternative rationales for agency decisions.

With respect to the discretionary disclosure of deliberative information, the quality of agency decisions would be adversely affected if frank, written discussion of policy matters were inhibited by the knowledge that the content of such discussion might be made public. For this reason, DOE has determined that discretionary disclosure of the deliberative material is not in the public interest because foreseeable harm could result from such disclosure.

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the



AMERICAN OVERSIGHT

public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of teleconference numbers and passcodes. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that the agency is justified in not releasing material that the agency reasonably foresees would harm an interest protected by one of the statutory exemptions. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, a redacted version of the document is being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration,



AMERICAN OVERSIGHT

8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 16, 2018, letter, you were advised that your request was placed in the "scientific" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

DOE is continuing to process your request. If you have questions about the processing of the request or this letter, please contact Ms. Elizabeth Sullivan in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at (202) 586-5955.

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01436-F**

**First partial response to request from Mr. Sam Gomberg for:**

**All emails, email attachments, or calendar invitations/entries sent or received by the following people:**

**a. Brian McCormack**
**b. Mark Menezes**
**c. Steve Winberg**
**d. Mark Maddox**
**e. Sean Plasynski**
**f. Bruce Walker**
**g. Edward McGinnis**
**h. Theodore Garrish**
**i. Martin Dannenfelser**
**j. Jennifer Loraine**
**k. Daniel Simmons**
**l. Sean Cunningham**
**m. Shaylyn Hynes**

**Provide records from May 30, 2018 to June 5, 2018.**

**In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."**

DOE conducted a search of its files, and at this time, has identified twenty-three (23) documents responsive to your request.

- Sixteen (16) documents *are being released in their entirety.*

- Four (4) documents are *being withheld in part pursuant to Exemption (b)(6).* Exemption 6 information consists of teleconference numbers and passcodes.

- Two (2) documents are *being withheld in part pursuant to Exemption (b)(5).* Exemption 5 information consists of deliberative process privilege information and internal discussions between DOE employees.

AMERICAN OVERSIGHT

- One (1) document is *being referred to the Department of Homeland Security for review*. This portion of the document will be provided to you in a subsequent response.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Walker, Bruce
**Sent:** Friday, June 01, 2018 11:07 AM
**To:** Winberg, Steven;Maddox, Mark
**Cc:** Almstead, Deidre;Lotto, Adrienne
**Subject:** FW: Introduction by Congressman Flores & Speaker Ryan

Either of you may wish to weigh in on this.

---

**From:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 12:59 PM
**To:** Harbin, Christine <Christine.Harbin@hq.doe.gov>, Goudarzi, Talat <Talat.Goudarzi@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Cc:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: Introduction by Congressman Flores & Speaker Ryan

(b) (5)

---

**From:** Harbin, Christine
**Sent:** Friday, June 01, 2018 12:58 PM
**To:** Goudarzi, Talat <Talat.Goudarzi@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Cc:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Subject:** RE: Introduction by Congressman Flores & Speaker Ryan

Hi Tala,
(b) (5)
Enjoy the weekend.
Chrissy

---

**From:** Goudarzi, Talat
**Sent:** Friday, June 01, 2018 12:30 PM
**To:** Harbin, Christine <Christine.Harbin@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Cc:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Subject:** Introduction by Congressman Flores & Speaker Ryan

Hi Guys- (b) (5) by Monday, June 4th, that would be so helpful!

Thank you so much!

Tala

# Introduction by Congressman Flores & Speaker Ryan

Thursday, May 24, 2018



AMERICAN OVERSIGHT

4:56 PM

| | |
|---|---|
| **Type:** | Meeting |
| **Requesting Party:** | Mr. Dietrich Gross, Chairman and CEO of Jupiter Oxygen Corporation |
| **Date:** | Open |
| **Location:** | DC |
| **Discussion Topics:** | Would like to meet with S1 regarding Jupiter Oxygen's innovative technology that, coincidentally, operates in full compliance with S1's recent directive to the National Coal Council. JOC's Carbon Capture Utilization and Storage technology is a vital element in responding to the "opportunity to optimize the existing U.S. coal-fueled power plant fleet to ensure a reliable and resilient electricity system." Speaker Ryan and Congressman Flores have recommended he meet with S1. |
| **DA rec:** | |
| **PO rec:** | |
| **Front Office rec:** | |

| | |
|---|---|
| Subject | **Introduction by Congressman Flores & Speaker Ryan** |
| From | Catherine Conley |
| To | Gerdes, Stan |
| Sent | Wednesday, May 23, 2018 5:20 PM |

Good Afternoon, Mr. Gerdes,

I am writing on behalf of Mr. Dietrich Gross, Chairman & CEO of Jupiter Oxygen Corporation.

Mr. Gross has had the opportunity to speak with both Congressman Flores and Speaker Ryan regarding Jupiter Oxygen's innovative technology that, coincidentally, operates in full compliance with the Secretary's recent directive to the National Coal Council. JOC's Carbon Capture Utilization & Storage technology is a vital element in responding to the "opportunity to optimize the existing U.S. coal-fueled power plant fleet to ensure a reliable and resilient electricity system".

Both Speaker Ryan and Congressman Flores strongly encouraged Mr. Gross to seek a meeting with Secretary Perry. (Please don't hesitate to connect with either the Speaker or the Congressman for insight into Mr. Gross and his work over the past two decades.)

This brings me to the purpose of my email to you. Would you be the most appropriate person with whom I should liaise to arrange a meeting with Mr. Gross and Secretary Perry?

Thank you, in advance, for your time and thoughtful consideration

Catherine Conley
Executive Assistant to Mr. D. Gross
**Jupiter Oxygen Corporation**
2800 S. River Road
Suite 300



AMERICAN OVERSIGHT

Des Plaines, Illinois 60018
+1 847 928 5934

Created with Microsoft OneNote 2013.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Harris, Aleisha (CONTR) on behalf of Walker, Bruce
**Sent:** Monday, June 04, 2018 10:10 AM
**To:** Malhotra, Sanjiv
**Cc:** Lawrence, Shamika
**Subject:** RE: EIC: Meeting to Discuss Commercialization of Energy Storage Technology

Good Afternoon,

Mr. Walker would like more details regarding your meeting. Please complete the attached form.

Thanks
Aleisha



-----Original Appointment-----
**From:** Malhotra, Sanjiv
**Sent:** Thursday, May 31, 2018 4:46 PM
**To:** Malhotra, Sanjiv; Walker, Bruce; Pesin, Michael
**Cc:** Harris, Aleisha (CONTR); Lawrence, Shamika
**Subject:** EIC: Meeting to Discuss Commercialization of Energy Storage Technology
**When:** Thursday, June 07, 2018 10:15 AM-10:45 AM (UTC-05:00) Eastern Time (US & Canada).
**Where:** 8H-033



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Harris, Aleisha (CONTR) on behalf of Walker, Bruce
**Sent:** Monday, June 04, 2018 1:46 PM
**To:** Williams, Matthew R. (CONTR)
**Cc:** Mclaughlin, Katherine (CONTR);Lotto, Adrienne
**Subject:** RE: Save the Date/Call for Topics: Federal Senior Leadership Council Meeting – Tuesday June 12, 2018

Hi Matt,

Due to scheduling conflicts, Mr. Walker is unable to attend the Federal Senior Leadership Council Meeting. He suggests that DAS Streit should attend in his place.

Thanks,
Aleisha

DHS Equity

AMERICAN OVERSIGHT

DHS Equity



AMERICAN OVERSIGHT

EXT-18-2615-F-000006

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Follow Up from Discussion Between Jeff + Pat |
| **Location:** | CNF-OE-8H-033 |
| **Start:** | Mon 6/4/2018 5:00 AM |
| **End:** | Mon 6/4/2018 6:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Lotto, Adrienne; Hoffman, Patricia; Streit, Devon (Lisa) HQ; Baumgartner, Jeffrey |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting w/ Rachel Kestenbaum |
| **Location:** | Bruce's Office \| 8H-033 |
| **Start:** | Mon 6/4/2018 6:30 AM |
| **End:** | Mon 6/4/2018 7:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Kestenbaum, Rachel; Lotto, Adrienne |

Requested by: R. Kestenbaum

Calendar POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Follow Up from Discussion Between Jeff + Pat |
| **Location:** | CNF-OE-8H-033 |
| **Start:** | Mon 6/4/2018 7:30 AM |
| **End:** | Mon 6/4/2018 8:30 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Lotto, Adrienne; Hoffman, Patricia; Streit, Devon (Lisa) HQ; Baumgartner, Jeffrey |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Harris, Aleisha (CONTR) on behalf of Walker, Bruce
**Sent:** Tuesday, June 05, 2018 6:46 AM
**To:** Pesin, Michael
**Cc:** Lawrence, Shamika
**Subject:** RE: EIC: Meeting to Discuss Commercialization of Energy Storage Technology

Good Morning,

Per my meeting with Mr. Walker, he would like to ensure that you will attend this meeting and invite others if you like.

Thanks
Aleisha

-----Original Appointment-----
**From:** Malhotra, Sanjiv
**Sent:** Thursday, May 31, 2018 4:46 PM
**To:** Malhotra, Sanjiv; Walker, Bruce; Pesin, Michael
**Cc:** Harris, Aleisha (CONTR); Lawrence, Shamika; Lotto, Adrienne
**Subject:** EIC: Meeting to Discuss Commercialization of Energy Storage Technology
**When:** Thursday, June 07, 2018 10:15 AM-10:45 AM (UTC-05:00) Eastern Time (US & Canada).
**Where:** 8H-033



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

| | |
|---|---|
| **Subject:** | Puerto Rico Recovery w/ Alex Breckel |
| **Location:** | CNF-OE-8H-033 |
| **Start:** | Tue 6/5/2018 1:00 PM |
| **End:** | Tue 6/5/2018 1:30 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Lotto, Adrienne; Breckel, Alex |

Requested by: Alex Breckel

Purpose: To discuss Puerto Rico recovery work

Calendar POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Barron's Magazine Call |
| **Location:** | Dial: (b) (6) |
| **Start:** | Wed 6/6/2018 5:30 AM |
| **End:** | Wed 6/6/2018 6:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Harbin, Christine; Hynes, Shaylyn; Lotto, Adrienne; jack.hough@barrons.com |

**Dial- in:** (b) (6)

**Purpose:** To discuss how the uptake of energy storage in the years ahead will change how electricity is distributed in America



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Follow-up Call: Schneider Electric Microgrids Puerto Rico |
| **Location:** | Dial: (b) (6) |
| **Start:** | Wed 6/6/2018 7:00 AM |
| **End:** | Wed 6/6/2018 7:15 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Anna.Pavlova@schneider-electric.com |
| **Optional Attendees:** | Lotto, Adrienne |

Topics of Discussion:

1. These projects have some bureaucratic hurdles (for example speeding up interconnection with PREpA, any public land issues) and we'd like to gage the willingness of the government to help and who would do that. Any advice overall on where Government is and how the federal role is shaping up is also appreciated.

2. While we come with financing, the community projects may need some additional funds. Are there any federal funds available?

3. We have identified several opportunities after numerous visits, but the more scale the better. We would like to know if DOE knows of some other nearby parties that may be interested that we may not have found. Doe engaged in an assessment of various sites and may have information on who else has some interest.



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

| | |
|---|---|
| **Subject:** | DOE + Alaska Power Association |
| **Location:** | ERC Conference Room |
| **Start:** | Wed 6/6/2018 9:00 AM |
| **End:** | Wed 6/6/2018 10:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Hoffman, Patricia; ERC; Pesin, Michael; Streit, Devon (Lisa) HQ; Jereza, Catherine; Hawk, Carol |
| **Optional Attendees:** | Lotto, Adrienne; Coe, Michael (CONTR) |

**Per Ms. Hoffman – please delegate to someone in your organization if you are not able to attend.**

**Purpose:** To discuss some of the challenges of providing electricity in Alaska, offer examples of what our members are working on, and to hear about the programs the Office of Electricity Delivery and Energy Reliability is working on that could be of assistance. The APA members in the meeting will represent nearly all areas of the state.

**Attendees:**

Cory Borgeson, CEO, Golden Valley Electric Assoc., U.S.
Bill Nordmark, Director, Golden Valley Electric Assoc., U.S.
Linda Freed, Director, Kodiak Electric Assoc., U.S.
Ben Frantz, General Manager, Barrow Utilities & Electric Co-op, U.S.
Connie Hulbert, Pres. and CEO, Alaska Electric Light and Power, U.S.
John Duhamel, CEO, Copper Valley Electric Assoc., U.S.
Travis Million, COO, Copper Valley Electric Assoc., U.S.
Tony Izzo, CEO, Matanuska Electric Assoc., U.S.
Garry Hennigh, City Manager, City of King Cove, U.S.
Crystal Enkvist, Exec. Director, Alaska Power Assoc., U.S.
Michael Rovito, Dir., Member and PR, U.S.





AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Follow-up Call: Schneider Electric Microgrids Puerto Rico |
| **Location:** | Dial: (b) (6) |
| **Start:** | Wed 6/6/2018 11:00 AM |
| **End:** | Wed 6/6/2018 11:15 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | 'Anna.Pavlova@schneider-electric.com' |
| **Optional Attendees:** | Lotto, Adrienne |

Rescheduled due to conflict.

Topics of Discussion:

1. These projects have some bureaucratic hurdles (for example speeding up interconnection with PREpA, any public land issues) and we'd like to gage the willingness of the government to help and who would do that. Any advice overall on where Government is and how the federal role is shaping up is also appreciated.

2. While we come with financing, the community projects may need some additional funds. Are there any federal funds available?

3. We have identified several opportunities after numerous visits, but the more scale the better. We would like to know if DOE knows of some other nearby parties that may be interested that we may not have found. Doe engaged in an assessment of various sites and may have information on who else has some interest.



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

| | |
|---|---|
| **Subject:** | INL Grid Security Resilience |
| **Location:** | DOE HQ| 1000 Independence Ave, SW Suite 8H-033, Washington, DC 20585 |
| **Start:** | Wed 6/6/2018 11:30 AM |
| **End:** | Wed 6/6/2018 12:00 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Peters, Mark |
| **Optional Attendees:** | Lotto, Adrienne; 'alexceya.collier@inl.gov' |

Purpose: To discuss INL Grid Security Resilience

Attendees: Mark Peters, INL Lab Director

Agenda:

- INL Update
- Joint lab efforts (OE/CESER)
- Workforce development opportunities

Material: TBD

Calendar POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Canceled: CESER Discussion and Priorities |
| **Location:** | CNF-OE-8H-033 |
| **Start:** | Wed 6/6/2018 12:00 PM |
| **End:** | Wed 6/6/2018 1:00 PM |
| **Show Time As:** | Free |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Hoffman, Patricia; Streit, Devon (Lisa) HQ; Lotto, Adrienne; Lee, Terri |
| **Importance:** | High |

5/29: Rescheduled due to conflicts.

Agenda:

- Hiring Evan Musolino to support the PR work – to paid from the supplemental funding – D. Streit
- Posting promotion potential positions that Matt T and Matt Duncan might apply to – D. Streit
- Priority hires for the Cyber R&D group – P. Hoffman

Calendar POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | 90 Day Study Discussion: Strategic Energy Sector Partnerships to Enhance National Security |
| **Location:** | CNF-OE-8H-033 |
| **Start:** | Thu 6/7/2018 1:00 PM |
| **End:** | Thu 6/7/2018 2:00 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Streit, Devon (Lisa) HQ; Steinberg, Ben; Lotto, Adrienne; Hoffman, Patricia; Musolino, Evan (CONTR) |

Purpose: Feedback on the report.

Calendar POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Canceled: 90 Day Study Discussion: Strategic Energy Sector Partnerships to Enhance National Security |
| **Location:** | CNF-OE-8H-033 |
| **Start:** | Thu 6/7/2018 1:00 PM |
| **End:** | Thu 6/7/2018 2:00 PM |
| **Show Time As:** | Free |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Streit, Devon (Lisa) HQ; Steinberg, Ben; Lotto, Adrienne; Hoffman, Patricia; Musolino, Evan (CONTR) |
| **Importance:** | High |

Purpose: Feedback on the report.

Calendar POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

**Subject:** CONFIRMED: Podcast
**Location:** TBD

**Start:** Fri 6/8/2018 6:00 AM
**End:** Fri 6/8/2018 7:00 AM
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Walker, Bruce
**Required Attendees:** Harbin, Christine; Lotto, Adrienne

[redacted]

30 minutes
Live to tape (little to no editing)
Episode will air about 4 weeks from now (b) (5)
Host: Bill Loveless
Location: OE conference room
When: Wednesday, June 6 at 9 AM

Flow of topics --

1) Quick intro
2) Brief overview of 5 priorities for electricity
3) New CESER office - cybersecurity
   a) Provisions, authorities in the Fast Act
   b) What's new? What's changed on cybersecurity policy over the past decade?
   c) How does DOE partner with the private sector?
4) Puerto Rico Recovery – lessons learned that can inform the upcoming hurricane season
5) NA Grid Model
6) Quick background on Bruce – how he got here



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | EMP Executive Order Discussion w/ ISER |
| **Location:** | CNF-OE-8H-033 |
| **Start:** | Fri 6/8/2018 10:00 AM |
| **End:** | Fri 6/8/2018 10:30 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Ostrich, John; Puesh Kumar (Puesh.Kumar@hq.doe.gov); Bendixen, Lisa M. (CONTR); Streit, Devon (Lisa) HQ |

Requested by: L. Bendixen

Purpose: to brief A/S Walker on the EMP Executive Order that is being drafted and to get A/S Walker's input and concerns.

Material: TBD

Calendar POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | HOLD: PNNL Meeting |
| **Location:** | TBD |
| **Start:** | Wed 6/13/2018 5:00 AM |
| **End:** | Wed 6/13/2018 7:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Hoffman, Patricia; Lotto, Adrienne; Imhoff, Carl H |
| **Optional Attendees:** | Ruiz, Gloria |

Meeting will invite will be updated once we have confirmation about the

Agenda:

- Resilience modeling
- Cyber and CRISP



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

| | |
|---|---|
| **Subject:** | CONFIRMED: KEYNOTE - NERC/FERC/EPRI Meeting |
| **Location:** | EPRI 1325 G Street, NW Washington DC |
| **Start:** | Thu 6/14/2018 5:45 AM |
| **End:** | Thu 6/14/2018 6:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Coe, Michael (CONTR) |
| **Optional Attendees:** | Hoffman, Patricia |



3/27: in a meeting with Vivian and Adrienne, Bruce mentioned that Joe Pladino wanted Bruce to give remarks at this meeting. Need to get more infro from Joe P.

Purpose: EPRI and DOE are co-organizing a one-day working session on resiliency. This session is intended to provide a high-level survey of resiliency work underway at both institutions and an examination of where additional efforts may be needed.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | DOE + PJM RE: PJM Fuel Security Study Inputs |
| **Location:** | 8H-033 |
| **Start:** | Thu 6/14/2018 10:00 AM |
| **End:** | Thu 6/14/2018 11:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Konieczny, Katherine; Lotto, Adrienne; Cunningham, Sean; Winberg, Steven; Cade, Steven |
| **Optional Attendees:** | Hoffman, Patricia |

Conference Line: (b) (6)
Code: (b) (6)

Requested by: Craig Glazier

Purpose: To get DOE input and feedback as they launch their PJM fuel security analysis. They're looking for your input to help us gauge the kind of contingencies we should be modeling and the number of days to model as affecting generation based on the triggering of that contingency.

Attendees:
Michael Bryson
Jonathan Monken
Others on Phone

Calendar POC: Aleisha M. Harris x6-1411.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | HOLD: PNNL Meeting |
| **Location:** | TBD |
| **Start:** | Thu 6/14/2018 12:00 PM |
| **End:** | Thu 6/14/2018 2:00 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | Hoffman, Patricia; Lotto, Adrienne; Imhoff, Carl H |
| **Optional Attendees:** | Ruiz, Gloria |

Meeting will invite will be updated once we have confirmation about the

Agenda:

- Resilience modeling
- Cyber and CRISP



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | BPA Meeting w/ Elliot Mainzer |
| **Location:** | Bruce's Office \| 8H-033 |
| **Start:** | Tue 6/19/2018 6:00 AM |
| **End:** | Tue 6/19/2018 6:30 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Walker, Bruce |
| **Required Attendees:** | MAINZER,ELLIOT E |
| **Optional Attendees:** | Lotto, Adrienne; Jones, Sheron |

Request by: Sheron Jones

Purpose: To discuss the following topics: BPA Strategic & Financial Plan Implementation, EIM and Fish.

POC: Aleisha M. Harris x6-1411



AMERICAN OVERSIGHT

**Department of Energy**
Washington, DC 20585

MAR 2 2 2019

Mohammad Aslami
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

Via email to: maslami@ucsusa.org

Re: HQ-2018-01507-F

Dear Mr. Aslami:

This is a final response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> All emails, email attachments, or calendar invitations/entries sent or received between 1) political appointees in the Office of the Secretary, Office of Fossil Energy, or Office of Electricity at the U.S. Department of Energy and 2) any representative from the National Coal Council or email addresses ending in "NCC1.org" Provide records from June 1, 2018 to the present.
>
> All emails, email attachments, or calendar invitations/entries sent or received by Bernard McNamee and any representative from the National Coal Council or email addresses ending in "NCC1.org" Provide records from June 1, 2018 to the present.
>
> All emails, email attachments, or calendar invitations/entries sent or received by Mark Menezes and any representative from the National Coal Council or email addresses ending in "NCC1.org". Provide records from June 1, 2018 to the present.

Your request was assigned to DOE's Office of the Executive Secretariat (ES); the Office of Fossil Energy (FE); the Office of Electricity (OE); and the Office of Policy (OP) to conduct a search of their files for responsive documents. DOE started its search on December 7, 2018, which is the cut-off date for responsive documents. DOE has located forty-six (46) documents responsive to your request. These documents are being provided to you as described in the accompanying index.

Upon review, DOE has determined that certain information should be withheld pursuant to Exemptions 5 and 6 of the FOIA, 5 U.S.C. § 552(b)(5) and (b)(6).

AMERICAN OVERSIGHT

Exemption 5 protects "inter-agency or intra-agency memorandums or letters that would not be available by law to a party other than an agency in litigation with the agency." 5 U.S.C. § 552(b)(5). This exemption has been construed to exempt those documents normally privileged in the civil discovery context, such as attorney-client communications, attorney-work product documents, and deliberative process material.

The information withheld under Exemption 5 consists of communications and information regarding matters to which legal counsel was being sought and are being withheld under the attorney-client privilege. Disclosure of this material would result in less open discussions of matters to which legal counsel is sought, and would have a chilling effect on the willingness of attorneys to provide adequate advice. Thus, certain portions of records are being withheld in part under Exemption 5 of the FOIA.

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of private cell phone numbers, private email addresses, a frequent flyer number, and other personal information. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that when a FOIA request is denied, agencies will be defended and justified in not releasing the material on a discretionary basis "if (1) the agency reasonably foresees that disclosure will harm an interest protected by one of the statutory exemptions, or (2) disclosure is prohibited by law." The Attorney General's memorandum also provides that whenever full disclosure of a record is not possible, agencies "must consider whether they can make a partial disclosure." Thus, we have determined that, in certain instances, a partial disclosure is proper. Pursuant to 10 C.F.R. Section 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above.

This decision may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate



AMERICAN OVERSIGHT

that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 24, 2018, letter, you were advised that your request was placed in the "news media" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

If you have questions about the processing of the request or this letter, please contact Ms. Elizabeth Sullivan in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at (202) 586-5955.

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01507-F**

**Final response to request from Mr. Mohammad Aslami for:**

> **All emails, email attachments, or calendar invitations/entries sent or received between 1) political appointees in the Office of the Secretary, Office of Fossil Energy, or Office of Electricity at the U.S. Department of Energy and 2) any representative from the National Coal Council or email addresses ending in "NCC1.org" Provide records from June 1, 2018 to the present.**
>
> **All emails, email attachments, or calendar invitations/entries sent or received by Bernard McNamee and any representative from the National Coal Council or email addresses ending in "NCC1.org" Provide records from June 1, 2018 to the present.**
>
> **All emails, email attachments, or calendar invitations/entries sent or received by Mark Menezes and any representative from the National Coal Council or email addresses ending in "NCC1.org". Provide records from June 1, 2018 to the present.**

DOE conducted a search of its files and has identified forty-six (46) documents responsive to your request.

- Eight (8) documents *are being released in their entirety.*
- Thirty-four (34) documents are *being withheld in part pursuant to Exemption (b)(6).* Exemption 6 information consists of private cell phone numbers, private email addresses, a frequent flyer number, and other personal information.
- Four (4) documents are *being withheld in part pursuant to Exemptions (b)(5) and (b)(6).* Exemption 5 information consists of confidential attorney-client communications and legal advice provided by DOE attorneys. Exemption 6 information consists of private cell phone numbers.

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Hiranthie Stanford <hstanford@ncc1.org>
**Sent:** Tuesday, June 12, 2018 11:26 AM
**To:** Matheney, Doug
**Subject:** Nationl Coal Council 2018 Fall Meeting RSVP

# NCC 2018 Fall Annual Meeting
# Registration Now Open!

Ladies & Gentlemen ~

The National Coal Council (NCC) is pleased to announce that we'll be hosting our 2018 Annual Fall Meeting on September 12-13 in Norfolk, VA at Hilton Norfolk The Main (100 East Main Street, Norfolk, VA, 23510).

**Conference Schedule**

**Wednesday, September 12th, 2018**

NCC Boat Excursion/Reception (Sponsored by Norfolk Southern) - 6-8 pm

**Thursday, September 13th, 2018**

NCC FACA Full Council Meeting - 8:30 am - 11:45 am
Lunch – 11:45 am – 12:30 pm (cost for lunch $37)
Norfolk Southern Lambert's Point Coal Export Terminal Tour – 12:45 pm – 4:00 pm

NCC members and guests must register to attend the NCC meeting by August 10th.

**Meeting Registration form at** http://www.nationalcoalcouncil.org/page-NCC-Events.html

**Hotel Accommodations**

Hilton Norfolk The Main – 100 East Main Street, Norfolk, VA 23510

Deluxe guest room rates are $179.00 per night.

Rooms can be reserved by calling 1-866-238-4218 and requesting National Coal Council 2018 Fall Meeting.

For Online Reservations:

http://www.hilton.com/en/hi/groups/personalized/O/ORFWAHH-NNC-20180911/index.jhtml?WT.mc_id=POG



AMERICAN OVERSIGHT

Deadline Friday, August 10th

**NCC Members**

C members (non-industry and not-for-profits only) seeking travel assistance must contact the U.S. )epartment of Energy no later than Friday, August 10th. Details at: NCC DOE Travel Assistance Requirements **Travel Reimbursement Procedures for Qualifying NCC Members**

**Please note the following deadlines:**

August 10th - Request DOE Travel Assistance for NCC Members
August 10th - Hotel Reservations
August 10th - Meeting Registration

As always, if you have questions, please let me know. I look forward to seeing you in September in Norfolk, VA.

Hiranthie Stanford - 202-756-4524 – hstanford@ncc1.org



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Sent:** Friday, June 15, 2018 1:49 PM
**To:** Giove, Joseph;Loman, Carol (CONTR);Matheney, Doug;Sneed, Michelle;Bossie, Darren
**Subject:** RE: NCC

UGH!

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Giove, Joseph [mailto:Joseph.Giove@HQ.DOE.GOV]
**Sent:** Friday, June 15, 2018 4:43 PM
**To:** Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Cc:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Subject:** RE: NCC
**Importance:** High

If Latanya can show us where she told us IN WRITING that we were required to use her new one-page format, then I believe we will have to comply with this. Other than that, we need to fight this as it will slow us down significantly.

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

**From:** Loman, Carol (CONTR)
**Sent:** Friday, June 15, 2018 4:39 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Cc:** Darby, Esther-Elizabeth (CONTR) <Esther-Elizabeth.Darby@hq.doe.gov>
**Subject:** NCC



AMERICAN OVERSIGHT

Esther too the package to Latayna but she wouldn't keep it. She insist that the Bios need to be the one page format used by NPC. This will delay the package for the time it takes to get them re-done. Your ball guys.

Carol Loman
202-586-6660



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | Janet Gellici - National Coal Council <jgellici@ncc1.org> |
| **Sent:** | Tuesday, June 19, 2018 6:49 PM |
| **To:** | Buchan, Samuel;Glove, Joseph;Jones, Ayaka;Matheney, Doug;Storch, Thomas;Smouse, Scott (HQ);Dan Byers;hdaniels@alphanr.com;Demeter, Ruth E;Emily Medine;Slone, Deck |
| **Cc:** | Swinson, Wanda |
| **Subject:** | REVISED Agenda for NCC Meeting with DOE-OIA - June 20th - 11 am-Noon |
| **Attachments:** | U.S. Coal Exports Report Outline v2.docx; Agenda NCC Coal Exports 06-20-18.doc |
| **Follow Up Flag:** | Flag for follow up |
| **Flag Status:** | Flagged |

Looking forward to seeing you all tomorrow, June 20th at 11 a.m. at DOE HQ ~ 1000 Independence Ave., SW, Washington, DC.

Updated agenda attached with new attendees. Please let me know if your plans have changed.

NCC members ~ we're meeting in the DOE HQ lobby 10:40 a.m. Please be on time; if you're late please find your way to Room 7C-016.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Janet Gellici - National Coal Council [mailto:jgellici@ncc1.org]
**Sent:** Tuesday, June 12, 2018 9:56 AM
**To:** Glove, Joseph <Joseph.Glove@HQ.DOE.GOV>; doug.matheney@hq.doe.gov; Buchan, Samuel <Samuel.Buchan@hq.doe.gov>; Storch, Thomas <Thomas.Storch@hq.doe.gov>; 'Byers, Dan' <DByers@USChamber.com>; hdaniels@doyletradingconsultants.com; Demeter, Ruth E <RDemeter@peabodyenergy.com>; Emily Medine <emedine@evainc.com>
**Cc:** Swinson, Wanda <Wanda.Swinson@hq.doe.gov>
**Subject:** Agenda for NCC Meeting with DOE-OIA - June 20th - 11 am-Noon

Ladies & Gentlemen ~
Looking forward to our meeting on June 20th, 11 am-Noon at DOE HQ Office of International Affairs. Thank you to OIA and DOE FE staff for taking time to meet with us.

In preparation for the meeting, I've attached an agenda with a list of anticipated attendees and an updated outline of NCC's Advancing U.S. Coal Exports Report which NCC is undertaking at the request of Secretary Perry.



AMERICAN OVERSIGHT

NCC participants please meet in the lobby of DOE HQ at 1000 Independence Ave. SW, Washington, DC at 10:40 am. We'll make our way through security together at that time – please remember your photo ID. Laptops may be brought into the building but will require extra security checks and time. If you have questions, please let me know.

Please note my cell phone #602-717-5112. If your plans change or you are running late on June 20th, please call and let me know.

Cheers ~

Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org



AMERICAN OVERSIGHT

# Advancing U.S. Coal Exports

## An Assessment of Opportunities to Enhance Exports of U.S. Coal

**Co-Chairs:**

**Coal Supply – Justin Burk, Commercial Director, Peabody Energy**

**Rail - David Lawson, Vice President Coal, Norfolk Southern Corporation**


**Summary**

The National Coal Council white paper on accelerating U.S. coal exports assesses international market opportunities for both metallurgical and thermal coals from Eastern, Central and Western coal-producing regions. The paper addresses current market, infrastructure and policy barriers impeding the export of coal from the U.S. and offers recommendations to reduce these barriers in an effort to enhance exports.


**Presidential Priorities Addressed in White Paper**

Energy Dominance, Infrastructure Development, Balance of Trade, Economic/Job Growth

**White Paper Outline**

1. International Market Opportunities
    a. Market Demand Outlook
    b. Global Coal Trade Overview
    c. Prime Markets for U.S. Coals
        i. U.S. Role in Global Markets
        ii. Metallurgical/Coking Coal Markets
        iii. Thermal Markets
2. Competitive Assessment
    a. Global Coal Market Suppliers
        i. Geo-political Perspective on Global Coal Supply
        ii. Principal Global Suppliers Met/Coking Coal – Advantages/Challenges
        iii. Principal Global Suppliers Thermal Coal – Advantages/Challenges
    b. Overview of U.S. Coal Export Network
        i. Export Suppliers – Metallurgical/Coking & Thermal Coals
        ii. Rail Network
        iii. Inland Waterway Network
        iv. Ports & Terminals
    c. Competitive Advantages/Challenges of U.S. vis-à-vis Global Suppliers
        i. Coal Quality
        ii. Supply, Transport & Shipping Infrastructure
        iii. Institutional & Regulatory Factors
3. Barriers to U.S. Coal Exports
    a. Supply Considerations
    b. Transport & Shipping Considerations
    c. Institutional & Regulatory Factors
    d. Other Considerations
4. Conclusions & Recommendations



**DRAFT - NOT FOR DISTRIBUTION**

AMERICAN OVERSIGHT

**Prospective Question to Be Addressed**

***The nation's abundant coal resources provide an opportunity for the U.S. to advance its energy dominant position in international power and industrial markets. What market, infrastructure and policy measures might be undertaken to unleash export opportunities for U.S. coal?***

- *What global market dynamics are providing opportunities for enhanced U.S. coal exports?*
- *How can U.S. coal capitalize on its advantages and become more competitive in international markets?*
- *What institutional and regulatory constraints are limiting the unleashing of American coal exports?*

**Expanded White Paper Outline**

This expanded outline includes points/topics that may prospectively be addressed in report.

1. **International Market Opportunities**
   a. Market Demand Outlook (met & thermal coals)
      Overview of thermal (power) market demand and industrial (steel/pig iron) demand, including publicly documented pricing information and demand forecasts, in each of the following regions:
      i. Asia/Pacific Basin
      ii. Europe/Atlantic
      iii. South America
      iv. North America (Canada/Mexico)

   b. Global Seaborne Coal Market Overview
      i. Supply-Demand Equilibrium Status
      ii. Global Disruptions – Temporal (weather) & Structural (policy)
      iii. Price Trends/Factors – Index vs. Benchmark Pricing, Long-term vs. Spot Pricing

   c. Prime Markets for U.S. Coals
      i. U.S. Role in Global Markets – Historical Perspective
      ii. Metallurgical Markets
      iii. Thermal Markets
      Need metrics to detail opportunities, i.e., job potential, tax revenue potential, balance of trade implications and economic impacts. See, for example, Alliance for Northwest Jobs and Exports on "Get the Facts" - http://createnwjobs.com/.

2. **Competitive Assessment**
   a. Global Coal Market Suppliers
      i. Geo-political Perspective on Global Coal Supply
      ii. Principal Global Suppliers Met Coal – Advantages/Challenges
      iii. Principal Global Suppliers Thermal Coal – Advantages/Challenges

      Emerging international coal suppliers may pose significant competition upon resolution of their mining operation and transportation constraints. (Russia)

   b. Overview of U.S. Coal Export Network
      i. Export Suppliers – Metallurgical & Thermal Coals
      ii. Rail Network
      iii. Inland Waterway Network (Barges/Terminals/Locks)
      iv. Ports & Terminals (West, Gulf & East Coast + Canada)



DRAFT - NOT FOR DISTRIBUTION

AMERICAN OVERSIGHT

c. Competitive Advantages/Challenges of U.S. vis-à-vis Global Suppliers
   i. Coal Quality
   ii. Supply, Transport & Shipping Infrastructure
   iii. Institutional & Regulatory Factors
   With the growth markets for coal increasingly shifting away from Europe toward Asia, the economics for exporting certain U.S. coals are becoming more challenged. This is particularly true for metallurgical coal, which is largely produced in the Eastern U.S. and increasingly must compete with high-quality, transportation-advantaged Australian coals in the Asian market. It is also true for high-CV thermal coals produced in the Eastern U.S.

**3. Barriers to U.S. Coal Exports**

a. Supply Considerations
   i. Opportunities/challenges for coal upgrading/drying and implications for enhancing export market opportunities.

   ii. Price in the marketplace will drive demand for U.S. coal. Opportunities to deploy advanced production technologies and processes at U.S. coal mines would enhance productivity, safety and ultimately competitiveness of U.S. coal in both international and domestic (vis-à-vis natural gas) markets. For example, automated, driver-less cars could be used underground to enhance mine operation productivity and safety.

   iii. Structural decline in U.S. domestic markets for coal may negatively impact ability of U.S. coal transportation network to maintain infrastructure and support capital investments in equipment.

   iv. Is there a need to address arguments that U.S. coal exports foster increased global greenhouse gas emissions? DOE has conducted assessment of GHG emissions associated with transport of coal exports to various markets. GHG should be considered as part of the report, especially to the extent that many destination countries are focused on reducing GHG emissions and this will likely affect demand for seaborne coal.

b. Transport & Shipping Considerations
   i. Infrastructure development opportunities exist on the U.S. West, Gulf and East Coasts that would facilitate the increased and competitive export of U.S. thermal and metallurgical coal to markets in Asia Pacific, Europe and South America.

   ii. U.S. West Coast proposed ports have been hampered by permitting issues and opposition from local and national activist groups.

   iii. U.S. West Coast port facilities would provide access to expanding markets in Asia Pacific for thermal coal.
      1. There are a number of government controlled facilities/properties on the West Coast, including military installations. Is there an opportunity to make use of these facilities/properties to enhance coal export capacity? Need to address challenges associated with rail access to these government facilities which are generally serviced by short-line railroads only; additional capital investment may be needed to ensure rail access.



DRAFT - NOT FOR DISTRIBUTION

AMERICAN OVERSIGHT

2. The case for the need for U.S. West Coast coal terminals is reinforced by recent initiatives to tax U.S. thermal coal exports out of West Coast Canadian ports. These initiatives are a potential risk to the export of PRB coals and demonstrate the vulnerability of relying on another country to export U.S. coals. Need to ensure positive mutual trade relations with Canada in light of limited availability of U.S. West Coast export facilities.

iv. U.S. East and Gulf Coast port facilities could be dredged to accommodate larger vessels, enhancing the competitiveness of U.S. coal in international markets.

c. Institutional and Regulatory Barriers to Coal Exports
   i. Barriers to export facility development
      1. Status/background
         a) A handful of proposals for new coal export facilities have been proposed in recent years; all attracted significant opposition [insert brief summary of projects and their status—Morrow, Gateway, Millennium, Oakland, others?].
         b) This opposition sought to employ a broad range of arguments and associated regulatory and permitting tools to block advancement of these facilities. These opponents have cited potential impacts related to aquatic species, greenhouse gases, air quality, water quality, coal dust, rail traffic, tribal impacts, [others?], and relied on an equally wide range of federal, state, and local statutes and permitting processes to halt projects, including NEPA, Clean Air Act, Clean Water Act, Endangered Species Act, and numerous State and local laws.
         c) Millennium project example case
         d) Environmental reviews lasted more than five years; exhaustive federal EIS was 4,000 pages and reached favorable conclusions; state EIS XXX thousand pages.
         e) The SEIS devoted considerable attention to life cycle greenhouse gas emissions, and proposed mitigation that would have required the project developer to purchase carbon offsets as a condition of getting a permit [expand on the precedent-setting nature of this proposal].
         f) Project owners spent >$15 million on environmental studies, undertook significant commitments in response to EIS findings demonstrating that potential concerns could be mitigated or largely eliminated.
         g) Nonetheless, the state of Washington finalized an unfavorable EIS concluding that environmental impacts would be significant and adverse, ultimately denying key permit(s). This prompted a legal challenge on a number of grounds, including that the denials violate the Commerce Clause and other federal laws. The challenge remains in litigation [expand/update].



DRAFT - NOT FOR DISTRIBUTION

AMERICAN OVERSIGHT

2. Lessons Learned/Findings/Recommendations
    a) At the federal level, barriers to advancing coal export facilities are generally surmountable, but the environmental review and permitting process is unnecessarily slow, and uncertainties involving environmental reviews inject unnecessary cost and uncertainty into the process. These issues are not unique to coal export facilities but rather tend to be common with major infrastructure reviews of all kinds.
    b) The Trump Administration has taken positive steps to begin to address these issues. Executive Order 13766 directed the Council on Environmental Quality to begin efforts to identify and expedite high priority projects under NEPA. Follow-up actions such as EO 13807 (One Federal Decision) and associated implementation memo attempt to address the need for improved agency coordination and more timely reviews.
    c) Legislative reforms to better streamline and coordinate federal environmental reviews—such as those that are part of the President's infrastructure plan [pull specifics], would help to further reduce uncertainties associated with environmental reviews.
    d) Regulatory reforms will also help to reduce project uncertainty and expedite federal reviews. Specifically, the Council on Environmental Quality should update regulations involving the entire NEPA review process, including regulatory guidance clarifying agency approaches to scoping questions and the appropriateness of imposing mitigation measures related to upstream and downstream issues far removed from the proposed project.
    e) Beyond NEPA, administrative process reforms involving the handling of project reviews under all federal statutes should be better coordinated. (Departments of Energy and Interior & EPA, as well as White House OMB and CEQ)
    f) This coordination needs to extend to the state and local levels. Conflicts between state permitting/politics and national security/global energy policy need to be addressed. Ultimately, even if the federal process for proposed projects is perfected, barriers at the state and local level likely present significant long-term obstacles to project development. Because many if not most of these obstacles are rooted in outright philosophical and political opposition to coal export projects, federal outreach



DRAFT - NOT FOR DISTRIBUTION

AMERICAN OVERSIGHT

ii. International demand-side barriers

1. Financing.

a) Are policies that restrict international financing of coal facilities hindering markets for U.S. coal exports? If so, what needs to be done to address these concerns? In his Unleashing American Energy initiative, President Trump directed the U.S. Department of Treasury to address barriers to international financing of coal projects. Is this sufficient? Would other such policy directives be helpful, i.e., liberalization of coal financing by multilateral development banks (MDBs) and the Multilateral Investment Guarantee Agency (MIGA – World Bank division)? NMA/Peabody actively engaged on these issues – reach out to Michael Flannigan for update.

b) Significant new coal plant capacity is under development or in the planning stages, including XX from countries that have historically imported U.S. coal. These plants offer obvious potential to for U.S. export growth.

c) Unfortunately, the U.S. government and multilateral development banks (MDBs) took action over the last decade to actively cut off financing for new coal power plants. In addition to potentially slowing development of new coal capacity, these policies allowed other countries (China, any others?) to provide financing that provided an advantage (or limited U.S. opportunities) to develop trading partnerships. (In addition, Chinese financing has tended to support less efficient designs, resulting in greater emissions.)

d) Describe status of U.S.-MDB financing policies (Treasury, Ex-Im, World Bank, IMF). While the U.S. prohibition on direct and indirect financing of coal plants by MDBs was reversed in 2017, prohibitions at most MDBs remain in place because the U.S. holds a minority position in those banks. The U.S. government should encourage MDBs to resume financing coal plants in developing countries.

- In countries where new coal-fired power plants are being developed, are there opportunities to encourage these to use U.S. coals as the design fuel?

2. Trade

a) Government-sponsored outreach to international stakeholders could facilitate stronger relationships and enhance trade relations in support of U.S. coal exports.

b) Promote U.S. as a high quality, reliable, competitive supplier and as a security hedge vis-à-vis other global suppliers (energy supply diversity).

c) Capitalize on declining coal quality from other global suppliers. (Indonesia & Australia)

d) Capitalize on supply limitations from other nations intent on using indigenous coal resources for their own domestic power needs. (Indonesia)

e) Capitalize on transportation network limitations of other global suppliers. (Russia)



DRAFT - NOT FOR DISTRIBUTION

AMERICAN OVERSIGHT

f) Exports of U.S. coal support the national and energy security needs of allies such as Japan, the Republic of Korea and others.
g) Asian tariffs on U.S. coal by countries such as China and Indonesia reduce the competitiveness of deliveries to the region; the USG should work to reduce or eliminate these tariffs.
h) Escalating trade tensions threaten to result in retaliation against U.S. tariffs on steel and aluminum and potentially impact U.S. coal exporters' access to markets. The USG should work to reduce trade barriers both domestic and foreign.

d. Other Considerations
   i. Some international markets for U.S. coals are restricted or could become restricted due to coal quality constraints or lack of environmental technologies/controls at end-user facilities.
      1. For example, some higher-sulfur coals from the Eastern U.S. (e.g., Northern Appalachia, Illinois Basin) are limited/excluded from certain Asian and European markets because of sulfur constraints.
      2. Growing markets (e.g., India, China) are increasingly recognizing the need to control emissions but still have a number of unscrubbed/uncontrolled power plants, pressuring the use of certain U.S. coals (e.g., high-sulfur, low-CV, etc.).

   ii. Backwardation in international coal price indexes (particularly for thermal coal) has made it difficult for producers to enter into longer-term contracts for export business. Spot contracting provides less certainty and makes it more difficult for producers to develop projects, plans and assets based on the export markets. **[Should this be moved to Section 1.b?]**

   iii. There seems to be little or no value in use of a national coal quality database for marketing purposes. Possible use for R&D? Possibility of considering a database in the context of metallurgical coals – quality is a major factor affecting the demand/applicability of U.S. coals in coking coal blends; any data that can be assembled to better understand/promote opportunities to increase the use of U.S. coals in international coking blends might be useful. (Unfortunately, full met coal analyses are much more difficult to obtain than the standard proximate analyses, etc., used for thermal coals so it's uncertain how practical assembling a comprehensive database of global met coal quality would be.

   iv. Possible segmentation of key import markets by coal qualities to assess opportunities, in which U.S. coal could "substitute" **[Should this be incorporated into Section 1 Market Opportunities?]**

   v. Improving the economics and competitiveness of U.S. coal exports would help support continued investments in coal mining and transportation infrastructure. This will help preserve well-paying, direct and indirect coal jobs which otherwise may be lost due to the structural decline in domestic coal demand projected to continue. A viable export market would also help maintain coal supply operations for domestic markets. **[Should this be moved to market opportunities or conclusion section?]**



**DRAFT - NOT FOR DISTRIBUTION**

AMERICAN OVERSIGHT

EXT-18-2615-G-000013

NATIONAL COAL COUNCIL

**Advancing U.S. Coal Exports Work Group**
**Meeting with DOE Office of International Affairs**
**1000 Independence Ave., SW, Room 7C-016, Washington, DC**
**June 20th, 2018 ~ 11:00 am-Noon**

**Attendees**

Samuel Buchan, Special Advisor, DOE OIA
Joe Giove, Director Coal Business Operations, DOE - NCC Deputy Designated Federal Officer
Ayaka Jones, International Technical Advisor, Office of Fossil Energy, DOE
Doug Matheney, Special Advisor to the Secretary on Fossil Energy, DOE
Scott Smouse, Office of Fossil Energy, International Affairs, DOE
Thomas Storch, Senior Advisor & Chief of Staff, DOE OIA

Dan Byers, Vice President Policy, Global Energy Institute (U.S. Chamber of Commerce)
Hans Daniels, CEO, Doyle Trading Consultants
Ruth Demeter, Senior Manager of Federal Government Relations, Peabody
Janet Gellici, CEO, National Coal Council
Emily Medine, Principal, Energy Ventures Analysis, Inc.
Deck Slone, Sr. Vice President Strategy & Public Policy, Arch Coal – NCC Chair (2018-2019)

DOE OIA Staff Contact – Wanda Swinson – Wanda.Swinson@hq.doe.gov – 202-586-5800

## AGENDA

- Welcome & Introductions
- Overview of NCC Coal Exports Report
- Input from DOE on Coal Export-related Initiatives
- Summary of Key Points & Next Steps
- Adjourn

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Sent:** Wednesday, June 20, 2018 12:56 PM
**To:** Buchan, Samuel;Storch, Thomas;Smouse, Scott (HQ);Jones, Ayaka;Giove, Joseph;Matheney, Doug
**Cc:** Slone, Deck;Emily Medine;Dan Byers;Demeter, Ruth E;hdaniels@doyletradingconsultants.com
**Subject:** Thank you!

All ~
Wanted to thank everyone for their time and thoughts today ~ it was a very helpful and productive discussion.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Sent:** Friday, June 22, 2018 1:49 PM
**To:** Matheney, Doug
**Subject:** RE: Giove

He should get a bonus if there is such a thing possible in the government ... I'm amazed he's taken this on in addition to his other responsibilities. Thanks, again, for "finding" him for us, Doug. Enjoy the weekend.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Friday, June 22, 2018 4:40 PM
**To:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Subject:** RE: Giove

Janet I could not agree more Joe has been outstanding in the position.

---

**From:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Date:** Friday, Jun 22, 2018, 3:53 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** Giove

Doug ~
I wanted to take a few minutes on behalf of the National Coal Council leadership to commend the work of Joe Giove as NCC's Deputy DFO. Joe's management skills and problem solving ability were instrumental in resolving an extremely complicated and stressful situation regarding our NCC membership appointments for 2018-2019. He was able to identify primary concerns, work effectively and graciously with all impacted parties, and achieve resolution of our issues in a timely fashion.

Joe has continued to effectively manage administrative issues to ensure that NCC is FACA-compliant. He has an innate ability to work with a variety of people who have varied needs and perspectives, finding common ground and innovative solutions to administrative challenges. His efforts have greatly enhanced the ability of the NCC to focus on its work for Secretary Perry.



AMERICAN OVERSIGHT

We greatly appreciate and value Joe Giove's contributions to the National Coal Council.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Hiranthie Stanford <hstanford@ncc1.org>
**Sent:** Tuesday, July 03, 2018 12:35 PM
**To:** Matheney, Doug
**Subject:** NCC 2018 Meeting Registration Reminder!

# NCC 2018 FALL MEETING REGISTRATION REMINDER

Ladies & Gentlemen ~

Just a reminder that registration for the National Coal Council's 2018 Fall Annual Meeting is now open. The meeting will be hosted September 12-13 at Hilton Norfolk The Main in Norfolk, VA. Registration details are available on the NCC website at http://www.nationalcoalcouncil.org/page-NCC-Events.html
Please note that the hotel reservation deadline is August 10th. We cannot guarantee rooms or the special rate of $179 after August 10th. Rooms can be reserved by calling 1-866-238-4218 and requesting National Coal Council 2018 Fall Meeting. For online reservations: http://www.hilton.com/en/hi/groups/personalized/O/ORFWAHH-NNC-20180911/index.jhtml?WT.mc_id=POG

Program at a Glance
**Wednesday, September 12th, 2018**

NCC Boat Excursion/Reception (Sponsored by Norfolk Southern) - 6-8 pm

**Thursday, September 13th, 2018**

NCC FACA Full Council Meeting - 8:30 am - 11:45 am

Lunch – 11:45 am – 12:30 pm (cost for lunch $37)



AMERICAN OVERSIGHT

Norfolk Southern Lambert's Point Coal Export Terminal Tour – 12:45 pm – 4:00 pm
**NCC Members**

C members (non-industry and not-for-profits only) seeking travel assistance st contact the U.S. Department of Energy no later than Friday, August 10th. Details at: NCC DOE Travel Assistance Requirements **Travel Reimbursement Procedures for Qualifying NCC Members**

**Please note the following deadlines:**

August 10th - Request DOE Travel Assistance for NCC Members

August 10th - Hotel Reservations

August 10th - Meeting Registration

We invite you to consider the opportunity to enhance your company's visibility at our upcoming meeting. Please use the following link to see a list of sponsorship opportunities http://www.nationalcoalcouncil.org/page-NCC-Events.html

I look forward to seeing you in Norfolk, VA!



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Giove, Joseph
**Sent:** Thursday, July 05, 2018 7:08 AM
**To:** Matheney, Doug;Sneed, Michelle;Bossie, Darren;Daniels, Jarad;Mollot, Darren;Kokkinos, Angelos;Sarkus, Thomas (NETL);Janet Gellici - National Coal Council;Winberg, Steven
**Cc:** Vincent, Kenneth;Loman, Carol (CONTR)
**Subject:** Update on NCC Membership Package of 29
**Attachments:** EXEC-2018-003551 - CHRON 7.5.18.doc

Update as of this morning (attached). White House Liaison (Uddo) has signed off. Package has arrived at S-3 for Menezes signature. After S-3, there is only S-2 and S-1. The "due date" of the package is listed as 7/13, so that's a pretty good estimate date for when it will be completed (if not sooner).

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

---

**From:** Darby, Esther-Elizabeth (CONTR)
**Sent:** Thursday, July 05, 2018 9:58 AM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Cc:** Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Davis, Karrnett <Karrnett.Davis@hq.doe.gov>
**Subject:** EXEC-2018-003551

**Please see attached CHRON for EXEC-2018-003551.**

**Thanks.**

**With regards,**

*Esther-Elizabeth Darby*
BCS
Contractor to the U.S. Department of Energy
Executive Secretariat (FE)
Office of Management and Field Operations (FE-6)
202.586.8374
4G-052



AMERICAN OVERSIGHT

# Office of the Executive Secretariat
# HIGH

**Final Completed Package**

**ES Number: EXEC-2018-003551** **Due Date: 07/13/18**

**Subject Summary:** Action Memo to the Secretary from FE/Steven Winberg, Assistant Secretary for Fossil Energy, requesting approval to appoint members to the National Coal Council (NCC)

**Action Requested:** Secretary Perry's approval

**Chronology:**

| | |
|---|---|
| 06/20 | to ES/ACM Butler for further processing |
| 06/21 | to ES/Bowie for review |
| 06/21 | to ES/Smith for review |
| 06/21 | to GC/Beard for review |
| 06/26 | GC/Beard reviewed – with edit |
| 06/27 | to ES/Smith for review and ES/Butler for revision |
| 06/28 | ES/Butler revised per GC's edit |
| 06/28 | to OS/Sneed for review |
| 06/29 | OS/Sneed reviewed |
| 06/29 | to WHL/Uddo for review |
| 07/03 | WHL/Uddo reviewed |
| 07/05 | to S3/Menezes for signature at the "through" line |

---

**From Org:** Office of Energy Fossil Energy
**Officer:** Steven Winberg, Assistant Secretary
**Alert Information:**
**Highlighted Policy:** None
**Background** **Approvals are requested as soon as practical to effectuate the appointment process**

**Information:**
**EXEC-2018-003551** **Return folder and contents to the Office of the Executive Secretariat upon completion of action.**
**Executive Secretariat Contact: LaTanya Butler, 6-0770**

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Janet Gellici - National Coal Council <jgellici@ncc1.org>
**Sent:** Thursday, July 05, 2018 7:15 AM
**To:** Giove, Joseph;Matheney, Doug;Sneed, Michelle;Bossie, Darren;Daniels, Jarad;Mollot, Darren;Kokkinos, Angelos;Sarkus, Thomas (NETL);Winberg, Steven
**Cc:** Vincent, Kenneth;Loman, Carol (CONTR)
**Subject:** RE: Update on NCC Membership Package of 29

Fabulous news, Joe. Thanks!
Let's keep it rolling -

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Giove, Joseph [mailto:Joseph.Giove@HQ.DOE.GOV]
**Sent:** Thursday, July 5, 2018 10:08 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Janet Gellici - National Coal Council <jgellici@ncc1.org>; Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Cc:** Vincent, Kenneth <Kenneth.Vincent@Hq.Doe.Gov>; Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>
**Subject:** Update on NCC Membership Package of 29

Update as of this morning (attached). White House Liaison (Uddo) has signed off. Package has arrived at S-3 for Menezes signature. After S-3, there is only S-2 and S-1. The "due date" of the package is listed as 7/13, so that's a pretty good estimate date for when it will be completed (if not sooner).

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)



AMERICAN OVERSIGHT

**From:** Darby, Esther-Elizabeth (CONTR)
**Sent:** Thursday, July 05, 2018 9:58 AM
**To:** Glove, Joseph <Joseph.Glove@HQ.DOE.GOV>
**Cc:** Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Davis, Karrnett <Karrnett.Davis@hq.doe.gov>
**Subject:** EXEC-2018-003551

**Please see attached CHRON for EXEC-2018-003551.**

**Thanks.**

**With regards,**

*Esther-Elizabeth Darby*
BCS
Contractor to the U.S. Department of Energy
Executive Secretariat (FE)
Office of Management and Field Operations (FE-6)
202.586.8374
4G-052



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Thursday, July 05, 2018 7:41 AM
**To:** Giove, Joseph;Sneed, Michelle;Bossie, Darren;Daniels, Jarad;Mollot, Darren;Kokkinos, Angelos;Sarkus, Thomas (NETL);Janet Gellici - National Coal Council;Winberg, Steven
**Cc:** Vincent, Kenneth;Loman, Carol (CONTR)
**Subject:** RE: Update on NCC Membership Package of 29

Thank you for the update Joe appreciate it you are doing a fantastic job.

---

**From:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Date:** Thursday, Jul 05, 2018, 10:08 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>, Daniels, Jarad <Jarad.Daniels@hq.doe.gov>, Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>, Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>, Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>, Janet Gellici - National Coal Council <jgellici@nccl.org>, Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Cc:** Vincent, Kenneth <Kenneth.Vincent@Hq.Doe.Gov>, Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>
**Subject:** Update on NCC Membership Package of 29

Update as of this morning (attached). White House Liaison (Uddo) has signed off. Package has arrived at S-3 for Menezes signature. After S-3, there is only S-2 and S-1. The "due date" of the package is listed as 7/13, so that's a pretty good estimate date for when it will be completed (if not sooner).

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

---

**From:** Darby, Esther-Elizabeth (CONTR)
**Sent:** Thursday, July 05, 2018 9:58 AM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Cc:** Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Davis, Karrnett <Karrnett.Davis@hq.doe.gov>
**Subject:** EXEC-2018-003551

**Please see attached CHRON for EXEC-2018-003551.**

**Thanks.**

**With regards,**



AMERICAN OVERSIGHT

*Esther-Elizabeth Darby*
BCS
Contractor to the U.S. Department of Energy
Executive Secretariat (FE)
Office of Management and Field Operations (FE-6)
202.586.8374
4G-052



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Hiranthie Stanford <hstanford@ncc1.org>
**Sent:** Wednesday, July 11, 2018 8:18 AM
**To:** Matheney, Doug
**Subject:** Secure your spot today – NCC 2018 Fall Annual Meeting

# The National Coal Council 2018 Fall Meeting Sponsorship Opportunities

The National Coal Council invites you to partner with us and become a sponsor at the **2018 NCC FALL Meeting** ~ September 12th – 13th, 2018 in Norfolk, VA at the Hilton Norfolk The Main! Sponsorship opportunities are listed below. We invite you to consider the opportunity to enhance your company's visibility at our upcoming meeting. Please use the following link to see a more detailed description of our sponsorships:
http://www.nationalcoalcouncil.org/page-NCC-Events.html

_____ **Event Sponsor** ~ $2500

_____ **Keynote Session Sponsor** (special acknowledgement at opening session) ~ $1000

_____ **Breakfast** ~ $750

_____ **Break/Coffee** ~ $750

_____ **Lunch Sponsor** ~ $750

## Thank you to our current sponsors!



AMERICAN OVERSIGHT

Norfolk Southern

Arch Coal

Charah Solutions, Inc.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Hiranthie Stanford <hstanford@ncc1.org>
**Sent:** Tuesday, July 24, 2018 1:34 PM
**To:** Matheney, Doug
**Subject:** Assistant Secretary for Fossil Energy to Keynote NCC 2018 Annual Fall Meeting

The National Coal Council (NCC) is pleased to announce that **Steve Winberg, Assistant Secretary for Fossil Energy, U.S. Department of Energy** will keynote the Council's 2018 Annual Fall Meeting on Thursday, September 13th at the Hilton Norfolk The Main – Norfolk, VA.

Meeting registration details are available at http://www.nationalcoalcouncil.org/page-NCC-Events.html.

**NCC members are encouraged to attend the meeting as the findings and recommendations on two NCC reports requested by Secretary Perry will be presented and voted on.**

- **Advancing U.S. Coal Exports: An Assessment of Opportunities to Enhance Exports of U.S. Coal**
- **Power Reset: Optimizing the Existing Coal Fleet to Ensure a Reliable & Resilient Power Grid**

The NCC's Full Council Meeting* on September 13th additionally features the following industry presentations:

- Microfine Hydrocarbon: A Novel Approach to Upgrading Coal into Higher-Value Oil Products
  Presented by Arq Ltd.
- Outlook on Future Markets for Coal
  Presenter TBD



AMERICAN OVERSIGHT

There is no charge to attend the September 13th meeting but advanced registration is requested.

Room accommodations at the Hilton Norfolk The Main (100 East Main Street, Norfolk, VA 23510) are available at $179/night by booking online at http://www.hilton.com/en/hi/groups/personalized/O/ORFWAHH-NNC-20180911/index.jhtml?WT.mc_id=POG

or calling 866-238-4218. The special room rate is available for reservations booked by August 10th.

For additional information, contact NCC Meetings Director Hiranthie Stanford at 202-756-4524 or hstanford@NCC1.org.

*The National Coal Council is a Federal Advisory Committee Act (FACA) group that serves in an advisory capacity to the U.S. Secretary of Energy. The FACA portion of the NCC meeting – September 13th 8:30-11:45 am is open to the public and the press.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Friday, July 27, 2018 9:22 AM
**To:** Giove, Joseph;Janet Gellici - National Coal Council;Kokkinos, Angelos;Daniels, Jarad;Mollot, Darren;Sneed, Michelle;Bossie, Darren;Loman, Carol (CONTR);Sarkus, Thomas (NETL);Hrkman, Lou
**Subject:** RE: Latest NCC Tracking System

Thank you Joe.

---

**From:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Date:** Friday, Jul 27, 2018, 11:27 AM
**To:** Janet Gellici - National Coal Council <jgellici@ncc1.org>, Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>, Daniels, Jarad <Jarad.Daniels@hq.doe.gov>, Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>, Matheney, Doug <Doug.Matheney@hq.doe.gov>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>, Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>, Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>, Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Subject:** Latest NCC Tracking System

FYI – Latest Version of NCC Tracking System.

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)



AMERICAN OVERSIGHT

# NCC Tracking List of Important Issues
## 7/20/18

### NCC Fall Meeting (Sept 12-13 in Norfolk, Va.)

- Federal Register Notice – This must be printed in the Federal Register by August 12th.
  - Status: **Notice must contain links to draft reports being voted on at the meeting. Joe sent Janet the draft of the notice on 7/27. Janet will edit and return to Joe for posting.**
- Script for Meeting – This must be completed well before the meeting so Winberg and others can be briefed on what their responsibilities will be at the meeting.
  - Status: **Joe sent around the previous draft. Not much can be done on it now until the agenda comes into greater focus.**
- Court Reporter – This will need to be arranged well before the meeting.
  - Status: **Cynthia Lacey will file the request with Joe Whitford (MA.42) in the near future. For the Spring Meeting, it was filed ~1 month before the meeting, but there is no set timeframe required.**
- Travel Reimbursement Funding for NCC Candidates – Members who represent non-profits and other groups with limited travel funds may request that DOE cover travel costs.
  - Status: **As of 7/27, six requests have been received. A ruling will be made on these shortly.**

### Membership Packages

- New Candidates for 2018-2019 – **Current Package contains ~29 prospective members [COMPLETE]**
  - Status: **Package was approved and letters were signed on 7/18. Letters have been sent out and confirmation e-mails are now being received by Glove.**
  - Status #2: **Glove met with GC/Gordon on 7/26, and notified Rod Osborne's on 7/27 that he had been successfully appointed to the NCC,** (b) (6)

(b) (6)

- Future SGEs on NCC – **NCC has never had Special Government Employees (SGEs). Two are currently under consideration for the next membership package.** (b) (5)

(b) (5)

  - Status: **Janet will come to HQ for a meeting on 8/13 to discuss this and other topics (possibly including Wayne Gordon (GC) in part/all of that meeting.)**

### Status of NCC Reports

- Advancing U.S. Coal Exports – Official request from Secretary Perry was dated January 7th and was received by NCC on January 18th.
  - Status: **The first meeting of the committee was held on 4/25. The work of the Committee is underway.**
  - Status #2: **Sub-Committee Calls have been set up for August.**
- Optimizing the Existing Coal Fleet – A draft letter requesting the report has been prepared by DOE for the Secretary's signature. The letter requests NCC complete the report by September 30, 2018.
  - Status: **The first meeting of the committee was held on 5/17. The work of the Committee is underway.**
  - Status #2: **Sub-Committee Calls have been set up for August.**
- National Petroleum Council's CCUS/CO2-EOR Report – In September 2017, Secretary Perry requested a report from NPC on CCUS/CO2-EOR asking NPC to work with NCC as a resource in preparation of this



AMERICAN OVERSIGHT

report. DOE believes there is no official authorization yet for NCC to work with NPC on this report. This CCUS study is owned by NPC. Janet has had discussions with Marshall Nichols and created the foundation for a good working relationship.

- **Status: On 5/30, NCC conducted a conference call with NPC staff. NCC has formed a preliminary advisory group that will work to facilitate collaboration between NCC and NPC. Janet has provided NPC with a summary of NCC reports on $CO_2$/Carbon Management (2000-2016).**

- **New Markets for Coal** – NCC has a draft outline for a proposed report assessing new markets for coal. The outline, which has been prepared by the NCC Subcommittee on New Markets for Coal formed at DOE's request under the leadership of Fred Palmer, has not been approved yet by the NCC Coal Policy Committee. DOE requested Gellici forward the outline to them for an initial review. The outline is expected to convert to a formal study request after DOE discussions. **The Goal is to have a Charge letter from S-1 to the NCC before the Norfolk NCC Meeting in Sept.**
  - **Status: 7/23, the hard copy package was provided to ES/Tanisha Fuller for review and further processing.**

## Miscellaneous

- (b) (5)
  - **Status #1: A meeting was held on 5/8 to discuss the issue. NCC Inc. Officials had additional questions and a discussion was had about having GC on future calls.**
  - **Status #2: On 5/14, Joe encouraged Janet to create a list of questions that he could take to GC for their consideration.**
- **How NCC Gets its Funding** – The NCC is currently funded through donations from its members. Discussions have been held on-and-off for years to discuss if that is the best model. Some FACAs are largely/completely funded by the Government. The discussion is being had afresh to see if action(s) should be taken.
  - **Status: A meeting was held on 5/8 primarily to discuss Janet's role as CEO of NCC Inc., but also veered into the topic of how NCC is currently funded. Giove suggested including GC in follow-on discussions.**
  - **Status #2: On 5/10, Giove contacted Gordon,** (b) (6) **and** (b) (5) (b) (5)
  - **Status #3: On 5/14, Joe encouraged Janet to create a list of questions that he could take to GC for their consideration.**
- **Identification of new Deputy DFO as replacement for Giove**
  - **Status: Draft plan for transition from Giove to Tom Sarkus sent from HQ to NETL on 7/20. Joe will continue to serve through Fall Meeting and will be slowly phased out as Tom comes up to speed. Giove will remain a DDFO in the future. . . just not the "lead" DDFO.**



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Hiranthie Stanford <hstanford@ncc1.org>
**Sent:** Monday, August 13, 2018 12:29 PM
**To:** Matheney, Doug
**Subject:** Are You Back from The Beach?

## Are You Back from The Beach?

Ladies & Gentlemen ~

I hope everyone enjoyed their summer break! Did you forget to register for our upcoming Fall meeting? Well if you did you're in luck our registration deadline has been extended! The NCC fall meeting will be held September 12-13 at Hilton Norfolk The Main in Norfolk, VA. Registration details are available on the NCC website at http://www.nationalcoalcouncil.org/page-NCC-Events.html.

Please note that the hotel reservation deadline has been extended to Friday, August 17th. We cannot guarantee rooms or the special rate of $179 after August 17th. Rooms can be reserved by calling 1-866-238-4218 and requesting National Coal Council 2018 Fall Meeting. For online reservations: http://www.hilton.com/en/hi/groups/personalized/O/ORFWAHH-NNC-20180911/index.jhtml?WT.mc_id=POG

Program at a Glance

**Wednesday, September 12th, 2018**

NCC Boat Excursion/Reception (Sponsored by Norfolk Southern) - 6-8 pm

**Thursday, September 13th, 2018**

NCC FACA Full Council Meeting - 8:30 am - 11:45 am

Lunch – 11:45 am – 12:30 pm (cost for lunch $37)

Norfolk Southern Lambert's Point Coal Export Terminal Tour – 12:45 pm – 4:00 pm

Thank you to the following sponsors Norfolk Southern, Jupiter Oxygen, Ramaco Carbon, ClearPath, Arch Coal, and Charah Solutions, Inc.



AMERICAN OVERSIGHT

Please contact Hiranthie Stanford if you have any questions at hstanford@ncc1.org.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

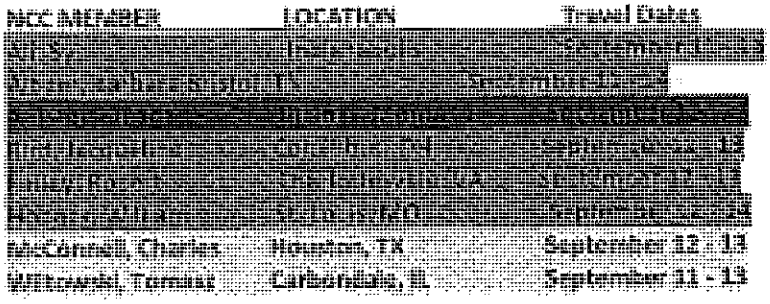
**From:** Matheney, Doug
**Sent:** Tuesday, August 14, 2018 3:12 AM
**To:** Giove, Joseph;Hrkman, Lou;Sneed, Michelle;Bossie, Darren;Daniels, Jarad;Janet Gellici - National Coal Council;Sarkus, Thomas (NETL)
**Cc:** Lacey, Cynthia (CONTR);Cline, Faith
**Subject:** RE: NCC Members Requesting Travel Assistance for Fall 2018

I agree with you Joe .

---

**From:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Date:** Monday, Aug 13, 2018, 10:02 PM
**To:** Hrkman, Lou <Lou.Hrkman@hq.doe.gov>, Matheney, Doug <Doug.Matheney@hq.doe.gov>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>, Daniels, Jarad <Jarad.Daniels@hq.doe.gov>, Janet Gellici - National Coal Council <jgellici@ncc1.org>, Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>
**Cc:** Lacey, Cynthia (CONTR) <Cynthia.Lacey@Hq.Doe.Gov>, Cline, Faith <Faith.Cline@hq.doe.gov>
**Subject:** FW: NCC Members Requesting Travel Assistance for Fall 2018

The deadline for NCC members to seek travel reimbursement was COB last Friday, 8/10. The following NCC members have requested travel assistance for the upcoming meeting.



| NCC MEMBER | LOCATION | Travel Dates |
|---|---|---|
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| McConnell, Charles | Houston, TX | September 12 - 13 |
| [redacted] | Carbondale, IL | September 11 - 13 |

- We have covered the travel of those in green in previous meetings
- Those I highlighted in yellow are new, but they work for Universities/Non-profits and thus qualify for travel reimbursement
- Senator Duane Ankney (Montana) is colored in [redacted] – he is the only one that is potentially "iffy". I am not aware if we have paid for State Senators in the past. However, he does fit the minimum qualifications.

The current NCC Charter reads, "Members of the Council serve without compensation, with a limited exception being case-by-case reimbursement in accordance with Federal travel regulations ***for per diem and travel expenses incurred by non-industry or not-for-profit group members while attending Council meetings."***

**Unless someone objects, I believe we should pay for each of those above. If anyone has any objections, please respond asap.**

Kind regards,



AMERICAN OVERSIGHT

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell:(b) (6)

**From:** Lacey, Cynthia (CONTR)
**Sent:** Monday, August 13, 2018 2:03 PM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Subject:** NCC Members Requesting Travel Assistance for Fall 2018
**Importance:** High

Hi Joe,

Below are the NCC Member that Requested Travel Assistance for the 2018 Fall NCC Annual Meeting in Norfolk, VA. Let me know if okay to proceed with making their travel itinerary in Concur.

Cynthia

| NCC MEMBER | LOCATION | Travel Dates |
|---|---|---|
| [redacted] | [redacted] | [redacted] |

Cynthia Lacey
Department of Energy
Office of Fossil Energy
Office of Clean Coal and Carbon Management
Germantown E-133
Cynthia.Lacey@hq.doe.gov
301-903-9451



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Thursday, August 23, 2018 12:15 PM
**To:** Matheney, Doug
**Subject:** RE: ncc

Great!

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

-----Original Message-----
From: Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
Sent: Thursday, August 23, 2018 3:13 PM
To: jgellici@ncc1.org
Subject: RE: ncc

Looks like Kipp Coddington will make it also.
He is trying to change things so he can make it.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

-----Original Message-----
From: jgellici@ncc1.org [mailto:jgellici@ncc1.org]
Sent: Thursday, August 23, 2018 3:08 PM
To: Matheney, Doug <Doug.Matheney@hq.doe.gov>
Subject: RE: ncc

Great ~ thanks, Doug.



AMERICAN OVERSIGHT

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

-----Original Message-----
From: Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
Sent: Thursday, August 23, 2018 3:05 PM
To: Janet Gellici - National Coal Council <jgellici@ncc1.org>; Glove, Joseph <Joseph.Glove@HQ.DOE.GOV>
Subject: ncc

Roxanne brown will attend.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---
This email has been checked for viruses by AVG.
https://www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Thursday, August 23, 2018 12:50 PM
**To:** jgellici@ncc1.org
**Cc:** Giove, Joseph
**Subject:** RE: Latest Attendee Count

Slow but sure we will get there.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Thursday, August 23, 2018 3:49 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Subject:** Latest Attendee Count

Doug ~
With the names you've mentioned as additional attendees we're at 56, possibly 57 (Bill Brownell is trying to rearrange schedule to attend).

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Thursday, August 23, 2018 2:06 PM
**To:** Matheney, Doug
**Subject:** RE: yes

Thank you

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

-----Original Message-----
From: Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
Sent: Thursday, August 23, 2018 5:00 PM
To: Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; jgellici@ncc1.org
Subject: yes

George Duggan is a YES.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---
This email has been checked for viruses by AVG.
https://www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Friday, August 24, 2018 5:58 AM
**To:** Matheney, Doug
**Subject:** FW: Are you back from the beach? Register for NCC Fall Meeting Today!

FYI ~ 58 and counting.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Irwin, Marty [mailto:MIrwin@idem.IN.gov]
**Sent:** Friday, August 24, 2018 8:49 AM
**To:** jgellici@ncc1.org
**Subject:** RE: Are you back from the beach? Register for NCC Fall Meeting Today!

2018 ANNUAL FALL MEETING
September 12-13, 2018 – Hilton Norfolk The Main – Norfolk, VA
NCC MEETING REGISTRATION

Fax: 732-231-6581 or Email info@NCC1.org this registration form.
Please register for the meeting no later than August 10, 2018
Name: Marty Irwin
Title: Environmental Tech
Company: Indiana Dept. of Environmental Management
Address: 100 North Senate State Office Building North, Suite 1003
Phone/Email Address: 317.234.35756, MIrwin@IDEM.IN.GOV
Guest Name(s):
Guest Company & Email:
I will attend the following events:
(You will be invoiced for lunch & sponsorships)

Wednesday, September 12th, 2018
___X__ NCC Boat Excursion/Reception (Sponsored by Norfolk Southern) 6:00-8:00 pm

Thursday, September 13th, 2018
____X_ NCC Full Council Meeting 8:30 am-11:45 am
___X__ *Lunch 11:45 am - 12:30 pm $37



AMERICAN OVERSIGHT

_____ Norfolk Southern Lambert's Point Coal Export Terminal Tour 12:45 pm-4:00 pm

Sign Me Up for A Sponsorship!
_____Event Sponsor ~ $2500
_____Keynote Session Sponsor ~ $1000
_____Breakfast Sponsor ~ $750
_____Break/Coffee Sponsor ~ $750
_____Lunch Sponsor ~ $750

---

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Monday, August 13, 2018 2:47 PM
**To:** Janet Gellici <jgellici@NCC1.org>
**Subject:** Are you back from the beach? Register for NCC Fall Meeting Today!

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

---

Ladies & Gentlemen ~

I hope everyone enjoyed their summer break! Did you forget to register for our upcoming Fall meeting? Well if you did you're in luck our as our registration deadline has been extended!

The NCC fall meeting will be held September 12-13 at Hilton Norfolk The Main in Norfolk, VA. Registration details are available on the NCC website at http://www.nationalcoalcouncil.org/page-NCC-Events.html.

Please note that the hotel reservation deadline has been extended to Friday, August 17th. We cannot guarantee rooms or the special rate of $179 after August 17th.
Rooms can be reserved by calling 1-866-238-4218 and requesting National Coal Council 2018 Fall Meeting.
For online reservations: http://www.hilton.com/en/hi/groups/personalized/O/ORFWAHH-NNC-20180911/index.jhtml?WT.mc_id=POG

Program at a Glance
**Wednesday, September 12th, 2018**
NCC Boat Excursion/Reception (Sponsored by Norfolk Southern) - 6-8 pm

**Thursday, September 13th, 2018**
NCC FACA Full Council Meeting - 8:30-11:45 am
Lunch – 11:45 am–12:30 pm (cost for lunch $37)
Norfolk Southern Lambert's Point Coal Export Terminal Tour – 12:45–4:00 pm

Thank you to the following sponsors Norfolk Southern, Jupiter Oxygen, Ramaco Carbon, ClearPath, Arch Coal, and Charah Solutions, Inc.
Please contact me or Hiranthie Stanford (hstanford@NCC1.org) if you have questions.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004



AMERICAN OVERSIGHT

Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Friday, August 24, 2018 7:47 AM
**To:** Matheney, Doug
**Subject:** Steve Krimsky attending

59

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Friday, August 24, 2018 8:52 AM
**To:** Matheney, Doug
**Subject:** FW: Jimmy Brock

-1 = 58

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** hstanford@ncc1.org [mailto:hstanford@ncc1.org]
**Sent:** Friday, August 24, 2018 11:12 AM
**To:** jgellici@ncc1.org
**Subject:** Jimmy Brock

Janet,

Jimmy Brock has canceled his registration. Dan Connell will still attend. I will update our records.

Hiranthie Stanford
Director of Membership & Meetings
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524

---

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Giove, Joseph
**Sent:** Friday, August 24, 2018 9:17 AM
**To:** Bossie, Darren;Matheney, Doug;jgellici@ncc1.org;Sneed, Michelle
**Subject:** RE: meeting

Indeed...Wow!!

---

**From:** Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Date:** Friday, Aug 24, 2018, 12:02 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>, jgellici@ncc1.org <jgellici@ncc1.org>, Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Doug is a miracle worker!

---

**From:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Date:** Friday, Aug 24, 2018, 12:00 PM
**To:** jgellici@ncc1.org <jgellici@ncc1.org>, Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Subject:** meeting

Maohong Fan yes maybe
Michael Holmes Yes
George Duggan yes
John Harju yes
Bill Brownell yes
That is all for the day so far.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Friday, August 24, 2018 10:45 AM
**To:** jgellici@ncc1.org;Bossie, Darren;Giove, Joseph;Sneed, Michelle
**Subject:** RE: meeting

Steven Krimsky yes

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Friday, August 24, 2018 12:25 PM
**To:** Bossie, Darren <Darren.Bossie@hq.doe.gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Thank you!

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Bossie, Darren [mailto:Darren.Bossie@hq.doe.gov]
**Sent:** Friday, August 24, 2018 12:02 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>; jgellici@ncc1.org; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Doug is a miracle worker!

---

**From:** Matheney, Doug <Doug.Matheney@hq.doe.gov>



AMERICAN OVERSIGHT

**Date:** Friday, Aug 24, 2018, 12:00 PM
**To:** jgellici@ncc1.org <jgellici@ncc1.org>, Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Subject:** meeting

Maohong Fan yes maybe
Michael Holmes Yes
George Duggan yes
John Harju yes
Bill Brownell yes
That is all for the day so far.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Friday, August 24, 2018 11:52 AM
**To:** jgellici@ncc1.org
**Subject:** RE: meeting

Marty Irvine yes

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Friday, August 24, 2018 12:25 PM
**To:** Bossie, Darren <Darren.Bossie@hq.doe.gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Thank you!

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Bossie, Darren [mailto:Darren.Bossie@hq.doe.gov]
**Sent:** Friday, August 24, 2018 12:02 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>; jgellici@ncc1.org; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Doug is a miracle worker!

---

**From:** Matheney, Doug <Doug.Matheney@hq.doe.gov>



AMERICAN OVERSIGHT

**Date:** Friday, Aug 24, 2018, 12:00 PM
**To:** jgellici@ncc1.org <jgellici@ncc1.org>, Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Subject:** meeting

Maohong Fan yes maybe
Michael Holmes Yes
George Duggan yes
John Harju yes
Bill Brownell yes
That is all for the day so far.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell:(b) (6)
Doug.Matheney@hq.doe.gov

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Friday, August 24, 2018 1:15 PM
**To:** jgellici@ncc1.org;Bossie, Darren;Giove, Joseph
**Subject:** RE: Steve Krimsky attending

Greg Merle yes

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Friday, August 24, 2018 10:47 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** Steve Krimsky attending

59

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Saturday, August 25, 2018 6:23 AM
**To:** Matheney, Doug;Bossie, Darren;Giove, Joseph;Sneed, Michelle
**Subject:** RE: meeting

Thanks, Doug.
FYI Heads Up ~ The hotel is sold out, along with all nearby hotels as there's a city-wide convention in town. While these folks may wish to attend the NCC meeting, they may not be able to find hotel accommodations and need to cancel after all. We're doing what we can but short of building a hotel, not much we can do.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Saturday, August 25, 2018 7:08 AM
**To:** jgellici@ncc1.org; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Buzz Brown yes.

---

**From:** jgellici@ncc1.org <jgellici@ncc1.org>
**Date:** Friday, Aug 24, 2018, 12:24 PM
**To:** Bossie, Darren <Darren.Bossie@hq.doe.gov>, Matheney, Doug <Doug.Matheney@hq.doe.gov>, Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Thank you!

Cheers ~
Janet Gellici
CEO



AMERICAN OVERSIGHT

National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Bossie, Darren [mailto:Darren.Bossie@hq.doe.gov]
**Sent:** Friday, August 24, 2018 12:02 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>; jgellici@ncc1.org; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>
**Subject:** RE: meeting

Doug is a miracle worker!

---

**From:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Date:** Friday, Aug 24, 2018, 12:00 PM
**To:** jgellici@ncc1.org <jgellici@ncc1.org>, Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Subject:** meeting

Maohong Fan yes maybe
Michael Holmes Yes
George Duggan yes
John Harju yes
Bill Brownell yes
That is all for the day so far.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Monday, August 27, 2018 5:28 PM
**To:** jgellici@ncc1.org
**Cc:** Giove, Joseph;Sarkus, Thomas (NETL);Hiranthie Stanford
**Subject:** RE: NCC Fall Meeting Update

Thanks

---

**From:** jgellici@ncc1.org <jgellici@ncc1.org>
**Date:** Monday, Aug 27, 2018, 8:08 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>, Hiranthie Stanford <hstanford@ncc1.org>
**Subject:** RE: NCC Fall Meeting Update

Hiranthie believes folks can reserve rooms through Hotels.com or Priceline.com or some such ~ she has the information and can provide to attendees. Once folks indicate to you, Doug, that they can attend, she is personally calling all to offer assistance with finding a hotel room.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct(b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Monday, August 27, 2018 7:58 PM
**To:** jgellici@ncc1.org
**Cc:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>
**Subject:** RE: NCC Fall Meeting Update

Have you found a place for people to stay?

---

**From:** jgellici@ncc1.org <jgellici@ncc1.org>



AMERICAN OVERSIGHT

**Date:** Monday, Aug 27, 2018, 6:45 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>
**Subject:** NCC Fall Meeting Update

So by our count, we now have 64 attending ~ we need 60 for a quorum ~ I'd be more comfortable with 68-70 in the likely event some of these folks can't make it at the last minute.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Wednesday, August 29, 2018 7:01 AM
**To:** Matheney, Doug
**Cc:** Giove, Joseph
**Subject:** FW: NCC RSVP 2018 FALL Meeting

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Kipp A. Coddington [mailto:kcodding@uwyo.edu]
**Sent:** Wednesday, August 29, 2018 9:38 AM
**To:** hstanford@ncc1.org
**Cc:** jgellici@ncc1.org
**Subject:** Re: NCC RSVP 2018 FALL Meeting

Just got your VM -- walking to the office. I can't attend unfortunately. Am speaking at the WY Oil &a Gas Fair that day in Casper. When DOE called me last week, I explained the situation and said I would try to reschedule. They said they would put me down as "maybe." I have since failed to reschedule my prior speaking commitment. I am stuck.

On Aug 29, 2018, at 7:35 AM, "hstanford@ncc1.org" <hstanford@ncc1.org> wrote:

> Good Morning Kipp,
>
> I hope you are doing well. I left you a message this morning about your attendance at the upcoming fall meeting. We received word that you would be attending the meeting and as of today I have not received a registration form confirming your attendance. Attached is a registration form the meeting. Can you please get this filled out and returned to me today? If you have any questions please let me know.
>
> Thank you,
>
> Hiranthie
>
> Hiranthie Stanford
> Director of Membership & Meetings
> National Coal Council
> 1101 Pennsylvania Ave. NW, #300, WDC 20004



AMERICAN OVERSIGHT

Office (202) 756-4524

<NCC 2018 ANNUAL FALL MEETING RSVP.docx>

Virus-free. www.avg.com



AMERICAN OVERSIGHT

EXT-18-2615-G-000057

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Wednesday, August 29, 2018 7:31 AM
**To:** Matheney, Doug
**Cc:** Giove, Joseph
**Subject:** Jason Bohrer now attending

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Wednesday, August 29, 2018 10:01 AM
**To:** jgellici@ncc1.org
**Cc:** Giove, Joseph
**Subject:** RE: Update on Fall Meeting NCC Member Attendance

Yoy can add Michael Moore

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Wednesday, August 29, 2018 12:24 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Subject:** Update on Fall Meeting NCC Member Attendance

Doug ~
By my count, we're at 64 ~ see attached spreadsheet.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

Virus-free. www.avg.com



AMERICAN OVERSIGHT

NCC Members Attending Fall 2018 Meeting

| | |
|---|---|
| Agbede | Hatch Chester |
| Ali | Clean Energy |
| Altizer | VACEA |
| Anderson | Babcock Power |
| Ankney | Senate MT |
| Atkins | Ramaco |
| Bird | JF Bird |
| Bohrer | Lignite Energy Council |
| Boyd | Dominion |
| Bradley | HaleyAldrich |
| Brown, Buz | ION |
| Brown, Ro | USW |
| Brownell | Hunton |
| Bullinger | GRE |
| Cassady | NRECA |
| Cialone | EWI |
| Collins | WRI |
| Denton | Susteon |
| Dombrows | Trimeric |
| Duddy | Axens |
| Duggan | BNSF |
| Finley | Consultant |
| Flannery | Steptoe & Johnson |
| Glesmann | Emissions Strategies |
| Gray | Charah |
| Greek | Basin Electric |
| Harju | EERC |
| Harrison | Consultant |
| Hill | CETA |
| Hoback | So. Ill. Univ. |
| Holmes | LEC |
| Irwin | Ind. Env. Mgt. |
| Jack | CDT Insurance |
| Johnson | GEN2 |
| Jones | LEC |
| Kalk | EERC |
| Krimsky | Jupiter |
| Krutka | Peabody |
| Lawson | NS |
| Long | Connemara |
| Mannes | Core Energy |
| McConnell | Rice Univ. |
| McNeil | NexGen |
| Merle | Riverview |
| Monseu | ACC |
| Nasi | Jackson Walker |

AMERICAN OVERSIGHT

| | |
|---|---|
| Obenshain | EEI |
| Oliver | YCI |
| Palmer | Heartland |
| Pfeiffer | LG&E |
| Purgert | OH Industries |
| Roling | Carbon Recovery |
| Romans | Mitsubishi |
| Russell | Occidental |
| Schultes | New Steel |
| Sjostrom | Advanced Emissions |
| Slone | Arch |
| Sorensen | Tri-State |
| Swift | Synfuels Americas |
| Teel | Southern Co. |
| Thompson | CATF |
| Williamson | Peabody |
| Wiltowski | So. Ill. Univ. |
| Workman | Dominion |

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Wednesday, August 29, 2018 10:14 AM
**To:** Matheney, Doug
**Cc:** Hiranthie Stanford
**Subject:** RE: Update on Fall Meeting NCC Member Attendance

Thank you!

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Wednesday, August 29, 2018 1:08 PM
**To:** jgellici@ncc1.org
**Cc:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Subject:** RE: Update on Fall Meeting NCC Member Attendance

Carolyn Slaughter yes

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Wednesday, August 29, 2018 12:24 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Subject:** Update on Fall Meeting NCC Member Attendance

Doug ~
By my count, we're at 64 ~ see attached spreadsheet.



AMERICAN OVERSIGHT

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org


Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Thursday, August 30, 2018 6:04 AM
**To:** Matheney, Doug
**Subject:** RE: Update on NCC Reports

Just tried phoning you ~ please give me a call when you're available.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Matheney, Doug [mailto:Doug.Matheney@hq.doe.gov]
**Sent:** Thursday, August 30, 2018 7:35 AM
**To:** jgellici@ncc1.org; Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Cc:** Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>
**Subject:** RE: Update on NCC Reports

Janet please give me a call later this morning.

---

**From:** jgellici@ncc1.org <jgellici@ncc1.org>
**Date:** Thursday, Aug 30, 2018, 7:31 AM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Cc:** Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>, Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** Update on NCC Reports

Joe –
The NCC's "Advancing U.S. Coal Exports" report will be posted to the NCC website and emailed to NCC members tomorrow as planned.

During Tuesday's Coal Policy Committee review of the Existing Fleet report, numerous concerns were raised, principally by our utility sector members who elected not to participate in the preparation of the report up until this CPC review stage. As such, we are in the process of revising text and reissuing to CPC members for consideration. Our plan is to resend the report to CPC members this morning and request comments back by Noon eastern on Friday 8/31. We anticipate then finalizing edits and emailing to all NCC members/posting report to NCC website by COB on Tuesday 9/4. We believe this still provides sufficient time for NCC



AMERICAN OVERSIGHT

members/the public to review the document in advance of the Sept. 13th Full Council Meeting. We'll post a revised publication date on the NCC website (http://www.nationalcoalcouncil.org/page-NCC-Studies.html).

Please let me know if you have any concerns.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---



Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Sneed, Michelle
**Sent:** Friday, August 31, 2018 9:37 AM
**To:** jgellici@ncc1.org;Giove, Joseph;Sarkus, Thomas (NETL);Matheney, Doug;Kokkinos, Angelos;Bossie, Darren
**Subject:** RE: NCC Advancing U.S. Coal Exports

Janet,
Thank you for the courtesy draft.
Big accomplishment for the committee!

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Friday, August 31, 2018 10:11 AM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Subject:** NCC Advancing U.S. Coal Exports

Ladies & Gentlemen ~
The attached draft version of the NCC's Advancing U.S. Coal Exports report for Secretary Perry is being posted to the NCC website today for public review and distributed to all NCC members for consideration in advance of their vote on the report on September 13th.

This draft is being provided to you as a courtesy. As you are aware, comments on NCC reports from Department of Energy staff cannot be entertained until after NCC members have approved the report. Once approved, we look forward to scheduling a time to provide a detailed briefing to DOE staff on the findings and recommendations from this report, and to address any questions or comments you might have.

We appreciate the FACA guidance provided by DOE staff as we've worked through the report preparation process since early this Spring, especially that of our DDFO Joe Giove. Looking forward to seeing you in Norfolk, September 13th.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | jgellici@ncc1.org |
| **Sent:** | Tuesday, September 04, 2018 1:36 PM |
| **To:** | Giove, Joseph;Sarkus, Thomas (NETL);Matheney, Doug;Kokkinos, Angelos;Sneed, Michelle;Bossie, Darren |
| **Subject:** | NCC Power Reset Report Draft |
| **Attachments:** | NCC Power Reset Report Draft 09-04-18.pdf |
| **Follow Up Flag:** | Flag for follow up |
| **Flag Status:** | Flagged |

Ladies & Gentlemen ~
The attached draft version of the NCC's Power Reset: Optimizing the Existing Coal Fleet report for Secretary Perry has been posted to the NCC website today for public review and is being distributed to all NCC members for consideration in advance of their vote on the report on September 13th.

This draft is being provided to you as a courtesy. As you are aware, comments on NCC reports from Department of Energy staff cannot be entertained until after NCC members have approved the report. Once approved, we look forward to scheduling a time to provide a detailed briefing to DOE staff on the findings and recommendations from this report, and to address any questions or comments you might have.

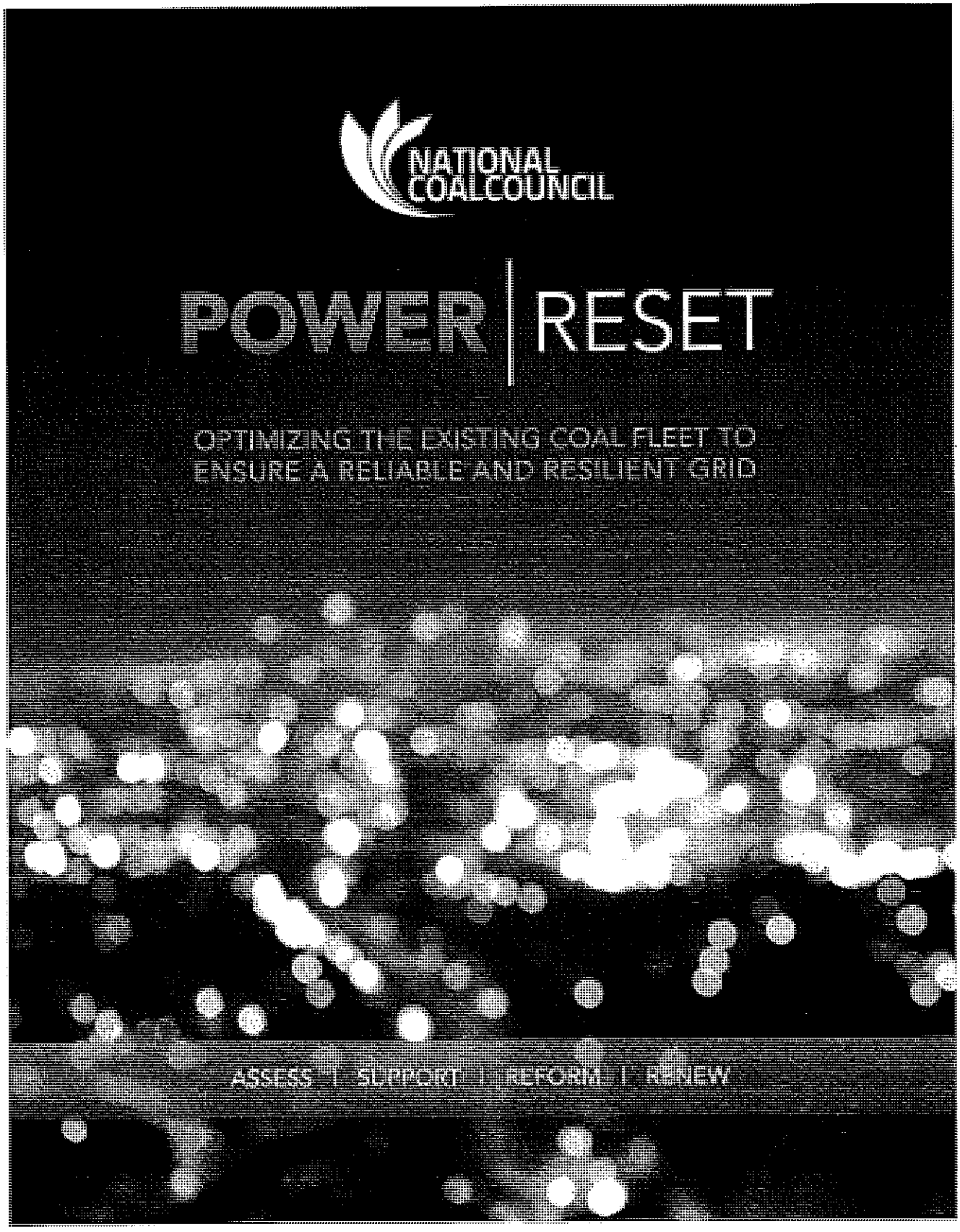
We appreciate the FACA guidance provided by DOE staff as we've worked through the report preparation process since early this Spring, especially that of our DDFO Joe Giove. Looking forward to seeing you in Norfolk, September 13th.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT




AMERICAN OVERSIGHT




REVISION 09-04-18

**EMBARGOED PENDING NCC MEMBER APPROVAL**

# Power Reset:

## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

*The National Coal Council is a Federal Advisory Committee established under the authority of the U.S. Department of Energy. Members from a diverse set of backgrounds and organizations are appointed to serve on the NCC by the Secretary of Energy to provide advice and guidance on general policy matters relating to coal and the coal industry. The findings and recommendations from this report reflect a consensus of the NCC membership, but do not necessarily represent the views of each NCC member individually or their respective organizations.*



AMERICAN OVERSIGHT

# Power Reset

## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid


**National Coal Council Leadership**

NCC Chair – Deck Slone, Arch Coal
NCC Vice Chair – Danny Gray, Charah Solutions
NCC CEO – Janet Gellici, National Coal Council

**Power Reset Report Co-Chairs**

Glenn Kellow, President & CEO, Peabody
Paul Sukut, CEO, Basin Electric Power Cooperative
Matt Rose, Executive Chairman, BNSF Railway

**Report Co-Chair Representatives**

Holly Krutka, Vice President Coal Generation & Emissions Technologies, Peabody
Matthew Greek, Sr. Vice President Research, Development & Technology
Basin Electric Power Cooperative
George Duggan, Vice President Coal Marketing, BNSF Railway

**Report Chapter Leads**

Paul Bailey, President Emeritus, American Coalition for Clean Coal Electricity
Michelle Bloodworth, President & CEO, American Coalition for Clean Coal Electricity
Janet Gellici, CEO, National Coal Council
Sheila Glesmann, Managing Director, Emission Strategies, Inc.
Matthew Greek, Sr. VP Research, Development & Technology, Basin Electric Power Coop
Holly Krutka, Vice President Coal Generation & Emissions Technologies, Peabody
Connie Senior, Vice President Technology, ADA-ES

**Principal Editors**

Holly Krutka, Peabody
Janet Gellici, National Coal Council



Library of Congress Catalog #TBD


DRAFT NOT FOR DISTRIBUTION - EMBARGOED PENDING NCC MEMBER APPROVAL


AMERICAN OVERSIGHT

**Contributing Authors, Managers & Reviewers**

Shannon Angielski, Carbon Utilization Research Council
Richard Axelbaum, Consortium for Clean Coal, Washington University (St. Louis)
Paul Bailey, American Coalition for Clean Coal Electricity
Shannon Maher Banaga, Esq., TECO Energy
Roger Bezdek, MISI
Lisa Bradley, Haley & Aldrich
Charlie Bullinger, Great River Energy
Frank Burke, Independent Consultant
Michelle Bloodworth, American Coalition for Clean Coal Electricity
Kipp Coddington, University of Wyoming
Don Collins, Western Research Institute
Dan Connell, Consol Energy
Katherine Dombrowski, Trimeric Corporation
Jeffrey Eppink, Enegis
Janet Gellici, National Coal Council
Sheila Glesmann, Emission Strategies, Inc.
Danny Gray, Charah Solutions
Matthew Greek, Basin Electric Power Cooperative
Mike Holmes, Lignite Energy Council
Susan Jackson, Santee Cooper
Kim Johnson, GEN2, LLC
Holly Krutka, Peabody
Heath Lovell, Alliance Coal
Shaun Mann, Tri-State Generation & Transmission
Michael Nasi, Jackson Walker, LLP
Ron Oster, Peabody
Fred Palmer, The Heartland Institute
Christopher Romans, Mitsubishi Heavy Industries America
John Schultes, New Steel International
Connie Senior, ADA-ES
Sharon Sjostrom, P.E., Advanced Emissions Solutions
Charles Snavely, State of Kentucky
Scott Stallard, Atonix Digital

DRAFT NOT FOR DISTRIBUTION - EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

**Report Subcommittee NCC Members**

Sy Ali, Clean Energy Consulting
Tom Alley, EPRI
Rich Axelbaum, Washington University (St. Louis) Consortium for Clean Coal Utilization
Charlie Bullinger, Great River Energy
Henry Clalone, EWI
Kipp Coddington, University of Wyoming School of Energy Resources
Don Collins, Western Research Institute
George Duggan, BNSF Railway
Mike Durham, Soap Creek Energy
Maohong Fan, University of Wyoming
John Fischer, Engineer Procure Construct LLC
Sheila Glesmann, Emission Strategies, Inc.
Matthew Greek, Basin Electric Power Cooperative
Mike Holmes, Lignite Energy Council
Susan Jackson, Santee Cooper
Kim Johnson, Gen2 LLC
Steve Krimsky, Jupiter Oxygen Company
Holly Krutka, Peabody
Heath Lovell, Alliance Coal
Emily Medine, EVA
Clark Moseley, Navajo Transitional Energy Company
Mike Nasi, Jackson Walker LLP
Chuck McConnell, Rice University Energy & Environment Initiative
Jerry Oliver, YCI Methanol One
Fred Palmer, The Heartland Institute
Christopher Romans, Mitsubishi Heavy Industries
Connie Senior, ADA-ES
John Schultes, New Steel International
Sharon Sjostrom, ADA-ES
Deck Slone, Arch Coal
Charles Snavely, State of Kentucky, Energy & Environmental Cabinet
Scott Stallard, Atonix (Black & Veatch Affiliate)
Sarah Wade, Wade LLC

**Report Subcommittee NCC Associates**

Paul Bailey, ACCCE
Roger Bezdek, MISI
Frank Burke, Independent Consultant
Todd Butler, TVA
Scott Castleberry, BNSF Railway
Dan Connell, CONSOL Energy
Randy Eminger, The Energy Policy Network
Jeffrey Eppink, Enegis
Harvey Ivey, Southern Company
Shaun Mann, Tri-State Generation & Transmission
Nancy Mohn, Independent Consultant
Ron Oster, Peabody

DRAFT NOT FOR DISTRIBUTION - EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT




## NCC Coal Policy Committee

**Chair - Holly Krutka**, Peabody
**Vice Chair - F. William Brownell**, Hunton Andrews Kurth LLP

**Tom Alley**, EPRI
**Shannon Angielski**
Carbon Utilization Research Council
**Duane Ankney**, State Senator – Montana
**Randall Atkins**, Ramaco Coal, LLC
**Richard Bajura**, West Virginia University
**Shannon Banaga**, TECO Energy Inc.
**Rick Boyd**, Dominion Energy
**Lisa Bradley**, Haley & Aldrich
**Brenda Brickhouse**, TVA
**John Cassady**, NRECA
**Joe Craft**, Alliance Coal, LLC
**Kipp Coddington**, University of Wyoming
**Brad Crabtree**, Great Plains Institute
**David Denton**, Susteon, Inc.
**Katherine Dombrowski**, Trimeric Corp
**John Duddy**, Axens North America
**George Duggan**, BNSF Railway
**Michael Durham**, Soap Creek Energy
**Ron Eller**, Tinuum Group LLC
**David Flannery**, Steptoe & Johnson, PPLC
**Danny Gray**, Charah Solutions
**Matthew Greek**, Basin Electric Power Coop.
**Mike Holmes**, Lignite Energy Council
**Susan Jackson**, Santee Cooper
**Dennis James**, North American Coal Corp
**Kim Johnson**, Gen2 LLC
**Michael Karmis**, Virginia Tech
**David Lawson**, Norfolk Southern Corp
**John Long**, Connemara Ltd.
**Heath Lovell**, Alliance Coal, LLC
**Len Marsico**, McGuireWoods, LLP
**Emily Medine**, Energy Ventures Analysis
**Charles McConnell**, Rice University
**Betsy Monseu**, American Coal Council
**Karen Obenshain**, Edison Electric Institute
**Jerry Oliver**, YCI Methanol One, Inc.
**Frederick Palmer**, The Heartland Institute
**Robert Purgert**, Energy Industries of Ohio
**Todd Savage**, Savage Services
**John Schultes**, New Steel International, Inc.
**Connie Senior**, ADA-ES, Inc.
**Sharon Sjostrom**, Advanced Emissions Solutions
**Deck Slone**, Arch Coal
**Michael Sorensen**, Tri-State G&T
**Scott Stallard**, Atonix Digital
**Scott Teel**, Southern Company Operations
**Matt Usher**, American Electric Power (AEP)
**Kemal Williamson**, Peabody
**Gregory Workman**, Dominion Energy Inc.

NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

## NCC Overview - 1984|2018

In the fall of 1984, Secretary of Energy Don Hodel announced the establishment of the National Coal Council (NCC). In creating the NCC, Secretary Hodel noted that "The Reagan Administration believes the time has come to give coal – our most abundant fossil fuel – the same voice within the federal government that has existed for petroleum for nearly four decades."

The Council was tasked to assist government and industry in determining ways to improve cooperation in areas of coal research, production, transportation, marketing and use. On that day in 1984, the Secretary named 23 individuals to serve on the Council, noting that these initial appointments indicate that "the Department intends to have a diverse spectrum of the highest caliber of individuals who are committed to improving the role coal can lay in both our Nation's and the world's energy future."

Throughout its nearly 35-year history, the NCC has maintained its focus on providing guidance to the Secretary of Energy on various aspects of the coal industry. NCC has retained its original charge to represent a diversity of perspectives through its varied membership and continues to welcome members with extensive experience and expertise related to coal.

In 1985, the NCC was incorporated as a 501c6 non-profit organization in the State of Virginia. Serving as an umbrella organization, NCC, Inc. manages the business aspects of running the Council. The leadership of the NCC serves as officers of NCC Inc. and members of the Council serve as NCC Inc. shareholders. The Executive Director of the Council is NCC Inc.'s Executive Vice President and Chief Operating Officer.

Today, the NCC continues to serve as an advisory group to the Secretary of Energy, chartered under the Federal Advisory Committee Act (FACA). The NCC provides advice and recommendations to the Secretary of Energy on general policy matters relating to coal and the coal industry.

The Council activities include providing the Secretary with advice on:

- Federal policy that directly or indirectly affects the production, marketing and use of coal;
- Plans, priorities and strategies to address more effectively the technological, regulatory and social impact of issues relating to coal production and use;
- The appropriate balance between various elements of Federal coal-related programs;
- Scientific and engineering aspects of coal technologies, including emerging coal conversion, utilization or environmental control concepts; and
- The progress of coal research and development.

The principal activity of the NCC is to prepare reports for the Secretary of Energy. The NCC's Coal Policy Committee develops prospective topics for the Secretary's consideration as potential subjects for NCC studies. During its nearly 35-year history, the NCC has prepared more than 35 studies for the Secretary, at no cost to the Department of Energy. All NCC studies are publicly available on the NCC website.

The NCC is a totally self-sustaining organization; it receives no funds from the Federal government. The activities and operations of the NCC are funded solely from member contributions, the investment of Council reserves and generous sponsors.

NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# NCC REPORT ACCEPTANCE LETTER

May 24, 2018

The Honorable Rick Perry
U.S. Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary:

Thank you for your letter of April 7th, 2018 requesting that the National Coal Council (NCC) prepare a report assessing opportunities to optimize the existing U.S. coal generation fleet to ensure a reliable and resilient electricity system.

On behalf of the members of the NCC, we are pleased to accept your request. Activity has already begun on preparing the report which will address the following key questions:

- What actions can be taken to optimize the U.S. coal-fueled power plant fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric generation mix?
- What unique benefits does coal provide?

**Glenn Kellow**, President & CEO for Peabody, **Paul Sukut**, CEO and General Manager for Basin Electric Power Cooperative, and **Matt Rose**, Executive Chairman for Burlington Northern Santa Fe will serve as co-chairs for this report. We will have the report completed by the requested completion date of September 30th, 2018.

Thank you for your support of the National Coal Council. We welcome the opportunity to support your and President Trump's vision for our nation's energy future.

Sincerely,

Deck Slone
National Coal Council Chair

Greg Workman
National Coal Council Immediate Past Chair

NOT FOR DISTRIBUTION OR PUBLICATION -- EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

NATIONAL COAL COUNCIL

# Report Request from Energy Secretary Rick Perry

**The Secretary of Energy**
Washington, DC 20585

April 07, 2018

Mr. Greg Workman
Chairman, National Coal Council
Dominion Generation
120 Tredegar Street, DC3
Richmond, Virginia 23219

Dear Mr. Workman:

I am writing today to charge the National Coal Council (NCC) to develop a white paper assessing opportunities to optimize the existing U.S. coal-fueled power plant fleet to ensure a reliable and resilient electricity system.

The white paper should focus on drivers governing the evolution of the existing fleet and its attributes; outlooks on the future U.S. generation mix considering regional drivers, anticipated capacity additions, and retirements; characteristics of a reliable and resilient electricity system; and opportunities for the existing coal-fueled fleet to enhance the said characteristics. The white paper should examine policy, market, and technological aspects influencing the ability of coal-fueled plants to uniquely enable a reliable and resilient electricity system. The key questions for this white paper to address are "*What actions can be taken to optimize the U.S. coal-fueled power plant fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric generation mix, and what unique benefits does coal provide?*"

I ask that the white paper be completed no later than September 30, 2018.

Upon receiving this request and establishing your internal working groups, please advise me of your schedule for completing the white paper. The Department looks forward to working with you on this effort.

Sincerely,

Rick Perry

Rick Perry

NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# Power Reset
## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

## Table of Contents


Executive Summary
Introduction

Chapter 1. Coal's Unique Role in the U.S. Energy Portfolio
- Key Findings
- Introduction
- Hallmarks of Reliable and Resilient Energy Resources
- The Value of Dispatchability and Flexibility
- The Role of Diversity in a Resilient and Cost-Effective Energy Portfolio
- Coal's Unique Energy, Economic and National Security Benefits
- Coal's Role in Enhancing the Global Competitiveness of the U.S.
- Today's U.S. Coal Fleet
- Evolution of the Existing U.S. Coal Fleet: Historic Drivers

Sidebar – International Lessons Learned

Chapter 2. Outlook for Coal Generation
- Key Findings
- Introduction
- Coal Generation Trajectory Basis
- Economic Pressures
- Unit Age
- Staffing Issues
- Regulations
- Societal Pressures
- Repercussions

Sidebar – High Impact – Low Frequency Events: Lessons Learned


NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

Chapter 3. Measures to Optimize Diversity & Resiliency
- Key Findings
- Introduction
- Policy Considerations
  - New Source Review
  - Tax Credits
    - Operation & Maintenance Tax Credits
    - 45Q Implementation & Synergistic Policies to Enhance Implementation
    - 48A Tax Credit
  - Land Use Policies Related to Carbon Storage and Utilization
  - Public Utility Regulatory Policies Act of 1978 Reform
  - Coal Combustion Residuals
  - Effluent Limitation Guidelines
  - Water-Energy Nexus
- Wholesale Electricity Markets
  - Compensation in Wholesale Markets
  - FERC Action
  - Market Reforms
  - Valuing Fuel Security
- The Role of Technology in Optimizing the U.S. Coal Fleet
  - Reducing Fuel Costs
  - Coal Upgrading
  - Improving Plant Efficiency – Retrofits & Repowering
  - Improving Flexibility
  - Reducing the Cost of Environmental Retrofits
  - Carbon Capture Opportunities
  - Rare Earth Elements
  - Boosting Revenue by Co-locating Other Coal Uses
  - RD&D Recommendations – CURC-EPRI Roadmap

Chapter 4. Conclusions & Recommendations
- ASSESS – the value of the coal fleet.
- SUPPORT – efforts to retain continued operation of the existing coal fleet.
- REFORM – the regulatory environment.
- RENEW – investment in coal generation.

NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

Appendices

1A. Definitions of Reliable and Resilient
1B. Reliable and Resilient Attributes
1C. Indirect Costs Associated with Intermittent Renewable Energy
1D. Renewable Energy and Dispatch
1E. Highlights of NERC Testimony on Performance of Electric Power System
1F. Perspectives on Energy Subsidies
1G. U.S. Coal-fired Power Plants – Location, Coal Type and Generation
1H. Environmental Regulations Impacting Coal Generation
2A. ACCCE Retirement Tracker August 2018
2B. Coal Combustion Residuals Rule Overview
3A. Additional Perspectives – The Reality of the Shift Towards a New Power Generation Mix

NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# Power Reset
## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

## LIST OF FIGURES & TABLES

**Figures**


Figure 1. Average Days of Stockpiled Coal Burn
Figure 2. Levelized Cost of Electricity
Figure 3A. Residential Electricity Rates
Figure 3B. Non-residential Electricity Rates
Figure 4. Comparison of Electricity Costs for States in the Contiguous U.S.
Figure 5. State GDP Distribution for High and Low Coal Generation States
Figure 6. U.S. Coal-fired Fleet Age (2017), Respective Average Generating Capacity Factor
Figure 7. Start-up Year & New Generation Capacity for Plants in Operation In 2005, 2010, 2015 and 2017
Figure 8. Net U.S. Electric Generation for 2006 to 2017
Figure 9. Natural Gas Futures Prices January 2006-March 2018
Figure 10. EIA Coal Generation Capacity
Figure 11. Net Electricity Generation from Select Fuels
Figure 12. EIA Annual Energy Outlook 2018 Coal Production by Region
Figure 13. Coal Generation Retirements Projected through 2030
Figure 14. Average Power Plant Operating Expenses for Major U.S. Investor-owned Units
Figure 15. Projected Unit Ages in 2040 without Further Unannounced Retirements
Figure 16. Location of Potential $CO_2$ Storage, Oil and Gas Production and Coal-fired Power Plants
Figure 17. U.S. ISOs and RTOs
Figure 18. PJM ISO Territory
Figure 19. Resource Adequacy: Impact of Gas Availability & Coal Retirements
Figure 20. Productivity Trends for U.S. Longwall Mines, Non-longwall Underground Mines and PRB Surface Mines in Operation as of 2017
Figure 21. Bench-scale Mercury Removal Test Results Beneficiated Lignite & PRB Coals
Figure 22. Coal-fired Power Plant Efficiency Audit Results
Figure 23. Charge and Discharge Mode for Coal Units Converted to Coal Peakers Using TES


**Tables**


Table 1. Reliability and Resilience Attributes
Table 2. Results of Dry Fining Process


NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT




# Power Reset
## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid
## ACRONYMS

The U.S. ton is a short ton - 2000 pounds; the metric tonne is approximately 2,204.6 pounds. In this report, tonnages are not standardized. "Tons" refer to short tons and "tonnes" refers to metric tonnes.

| | |
|---|---|
| ACCCE | American Coalition of Clean Coal Electricity |
| ACEEE | American Council for Energy Efficient Economy |
| AEP | American Electric Power |
| ASC | Advanced Super Critical |
| AUSC | Advanced Ultra-Super Critical |
| Bbl | Barrel (oil) |
| BLM | Bureau of Land Management |
| BNSF | Burlington Northern Santa Fe Railway |
| BPS | Bulk Power System |
| CAISO | California Independent System Operator |
| CBM | Coal Bed Methane |
| CCR | Coal Combustion Residuals |
| CCUS | Carbon Capture Use/Utilization & Storage |
| CEQ | White House Council on Environmental Quality |
| $CO_2$ | Carbon Dioxide |
| CPP | Clean Power Plan |
| CRS | Congressional Research Service |
| CSP | Concentrated Solar Power |
| CT | Combustion Turbine |
| CURC | Carbon Utilization Research Council |
| DOE | U.S. Department of Energy |
| DOI | U.S. Department of Interior |
| DSIRE | Database of States Incentives for Renewables & Efficiency |
| EERS | Energy Efficiency Resource Standards |
| EIA | U.S. Energy Information Administration |
| ELG | Effluent Limitation Guidelines |
| EOR | Enhanced Oil Recovery |
| EPA | U.S. Environmental Protection Agency |
| EPRI | Electric Power Research Institute |
| ERCOT | Electric Reliability Council of Texas |
| ERS | Electric Reliability Services |
| FERC | Federal Energy Regulatory Commission |
| FGD | Flue Gas Desulfurization |
| GDP | Gross Domestic Product |
| GHG | Greenhouse Gas |
| GW | Gigawatt |
| HELE | High Efficiency Low Emissions |
| HG | Mercury |
| HILF | High Impact Low Frequency |
| IGCC | Integrated Gasification Combined Cycle |
| IOU | Investor Owned Utility |

NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

| | |
|---|---|
| IRE | Intermittent Renewable Energy |
| ISO | Independent System Operator |
| ITC | Investment Tax Credit |
| LCOE | Levelized Cost of Electricity |
| MATS | Mercury & Air Toxics Standards |
| MISO | Midwest Independent System Operator |
| MLA | Mineral Leasing Act |
| MLP | Master Limited Partnership |
| MOPR | Minimum Offer Price Rule |
| MSHA | Mine Safety & Health Administration |
| MW | Megawatt |
| NAM | National Association of Manufacturers |
| NARUC | National Association of Regulatory Utility Commissioners |
| NCC | National Coal Council |
| NCSL | National Council of State Legislators |
| NEPA | National Environmental Policy Act |
| NERC | North American Energy Regulatory Commission |
| NETL | National Energy Technology Laboratory |
| NGCC | Natural Gas Combined Cycle |
| NPDES | National Pollutant Discharge Elimination System |
| NRC | National Research Council |
| NSR | New Source Review |
| NYISO | New York Independent System Operator |
| O&M | Operations & Maintenance |
| OPEC | Organization of Petroleum Exporting Countries |
| PAB | Private Activity Bonds |
| PJM | Pennsylvania Jersey Maryland Interconnection |
| PM | Particulate Matter |
| PPA | Power Purchase Agreement |
| PTC | Production Tax Credit |
| PURPA | Public Utilities Regulatory Policies Act of 1978 |
| RCRA | Resource Conservation and Recovery Act |
| REE | Rare Earth Elements |
| ROW | Rights of Way |
| RPS | Renewable Portfolio Standard |
| RTO | Regional Transmission Organization |
| $SO_2$ | Sulfur Dioxide |
| SPP | Southwest Power Pool |
| USGS | U.S. Geological Survey |

NOT FOR DISTRIBUTION OR PUBLICATION – EMBARGOED PENDING NCC MEMBER APPROVAL

AMERICAN OVERSIGHT

# Executive Summary

**[PLACEHOLDER]**



AMERICAN OVERSIGHT

# Chapter 1: Coal's Unique Role in the U.S. Energy Portfolio

## Key Findings – Chapter 1

- **The existing U.S. coal fleet provides a reliable and resilient foundation in support of the nation's need for a stable, diversified energy portfolio.**
- **The coal fleet's ability to dispatch power when needed provides flexibility in meeting fluctuations in demand not met by intermittent renewable energy resources.**
- **U.S. national and economic security interests are supported by the abundance of domestic coal resources and the coal fleet's ability to provide affordable, reliable electricity for residential and industrial consumers. Low-cost electricity enhances the nation's competitiveness in international markets.**
- **Approximately 24% of U.S. coal-fired generating capacity retired between 2005 and 2017.**
- **To ensure the U.S. continues to reap the benefits from its coal-fired generation assets, we must ASSESS the value of the coal fleet, SUPPORT efforts to retain continued operation of the existing coal fleet, REFORM the regulatory environment and RENEW investment in coal generation.**

## Introduction

The nation's abundant, affordable and diverse domestic energy resources underpin its economic prosperity. The existing fleet of U.S. coal power plants is a critical component of the nation's energy portfolio, providing a foundation of reliable and resilient electricity in today's dynamic and rapidly evolving energy system.

The historic stability of the nation's energy system is, however, subject to disruptions arising from market distortions, regulation and regulatory uncertainty, which can increase the cost of electricity, threaten the reliability and resilience of the electric grid and hamper economic growth. These factors have most significantly and disproportionately impacted the nation's coal plants. As of August 12, 2018, more than 115,000 MW of coal generating capacity has retired, converted to another fuel or been slated for retirement by 2030. This represents nearly 40% of the U.S. coal fleet that was operating in 2010.[i]

It's time for the U.S. to hit the "Power Reset" button to assess, support, reform and renew the role of the existing coal fleet in the U.S. power sector. ASSESS the value of the coal fleet. SUPPORT efforts to retain continued operation of the existing coal fleet. REFORM the regulatory environment. RENEW investment in coal generation.

The National Coal Council's *Power Reset* report has been undertaken at Secretary Perry's request to identify measures that can be employed to optimize the U.S. coal generation fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric mix. This chapter of the report details the unique benefits coal provides in fulfillment of these objectives.



AMERICAN OVERSIGHT

## Hallmarks of Reliable and Resilient Energy Resources

The U.S. power system benefits from an electric grid that is not only reliable, but resilient. There are many definitions of "reliable" and "resilient" (see Appendix 1A). In general, a reliable electric system minimizes the likelihood of disruptive electricity outages, while a resilient system is designed with the understanding that outages will occur, is prepared to deal with them, is able to restore service quickly and draws lessons from the experience to improve performance in the future.[ii]

A recent report noted that "A variety of attributes are required to maintain a reliable and resilient grid – no one technology can do it all."[iii] PJM has also examined various attributes that provide Essential Reliability Services (ERS), fuel assurance and flexibility as well as other associated characteristics (see Table 1).[iv] (See Appendix 1B for list and definition of reliable and resilient attributes.)

*Table 1. Reliability and Resilience Attributes*[v]

**Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type**

| Attribute | Coal | Natural Gas | Wind/Solar | Nuclear | Demand Response |
|---|---|---|---|---|---|
| Dispatchability | ✓ | ✓ | | ✓ | |
| Inertia | ✓ | ✓ | ✓(wind) | ✓ | |
| Frequency Response | ✓ | ✓ | ✓[3] | | |
| Contingency Reserves | ✓ | ✓ | | | ✓ |
| Reactive Power | ✓ | ✓ | | ✓ | |
| Ramp Capability | ✓ | ✓ | | | ✓ |
| Black Start | | ✓ | | | |
| Resource Availability | ✓ | ✓ | | ✓ | |
| On-Site Fuel Supply | ✓ | | | ✓ | ✓ |
| Reduced Exposure to Single Point of Disruption | ✓ | | ✓ | ✓ | ✓ |
| Price Stability | ✓ | | ✓ | ✓ | ✓ |

These assessments demonstrate that a diverse generation portfolio is critical to maintaining a reliable and resilient grid. Among the attributes in which coal plants excel are fuel security/assurance, resource availability, on-site fuel supply, price stability and dispatchability. The ability to store fuel onsite and keep generation online is invaluable, especially during regional storms or other disturbances. It is also valuable in supporting rapid recovery following power outages. In December 2017, the average coal power plant burning subbituminous coal had a stockpile that represented 94 days of burn; plants burning bituminous coal had a stockpile representing 87 days of burn (see Figure 1).[vi]



AMERICAN OVERSIGHT

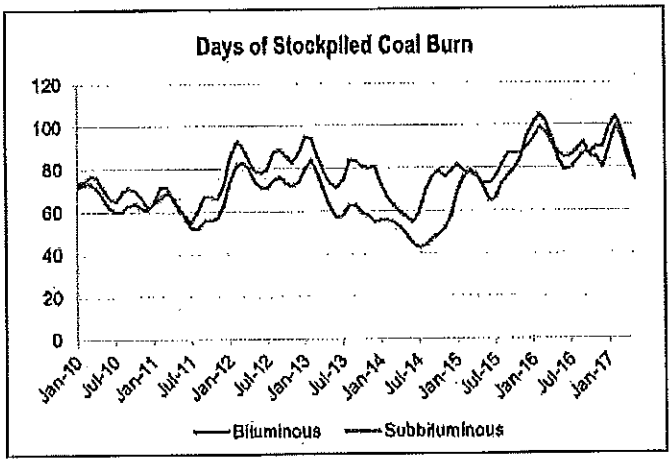



*Figure 1. Average Days of Stockpiled Coal Burn*

Resource availability is a concept that acknowledges the value associated with abundant fuel sources that are widely and readily accessible. Coal is used to generate electricity in 48 states; it provides at least half the electricity in 13 states and at least one quarter of the electricity in 24 states.[vii] Unlike natural gas, the vast majority of coal consumed in the U.S. — 86% in 2017[viii] — is for power generation; thus, coal plants do not compete with higher priority uses such as residential consumers, critical operations (schools/hospitals) and industrial uses.

Coal is mined in 25 states; 60% of coal is produced west of the Mississippi River and 40% is produced in the east.[ix] Coal can be shipped via a variety of transportation modes, including rail, truck and barge. Diversity in transportation methods makes coal supply less vulnerable to single points of disruption. In addition, there are many electric generating facilities that operate under a "mine-mouth" model with a dedicated coal mine adjacent to the power plant. Because of these factors, coal generation has low exposure to fuel supply chain issues.

Price stability acknowledges the value of a resource that has maintained steady, non-volatile pricing over time and can be secured on a guaranteed basis. The majority of coal is purchased through multi-year contracts for both the commodity and transportation.

## The Value of Dispatchability and Flexibility

Dispatchability is a key component of a reliable and resilient power system. Power from baseload plants can be scheduled in advance to meet predicted load and their dispatch can be adjusted to increase or decrease output as required, providing flexibility in meeting fluctuations in demand.[x] Unlike dispatchable plants, wind and solar generation are intermittent power sources and do not mitigate the need for added dispatchable generation (i.e., reserve power) in order to reliably maintain grid supply-demand balances, depending on the time of day and year and weather conditions.[xi]



AMERICAN OVERSIGHT

Issues associated with intermittent renewable energy (IRE) resources and their implications for fuel assurance and price stability were very apparent in the recent wind drought experienced in the United Kingdom. The UK *Daily Mail*[xii] reported that in early June 2018, Britain was "becalmed" when wind turbines across the nation were at a standstill as the wind "disappeared" for over a week causing a two-year low in electricity production. The lack of wind resulted in turbines generating less than 2% of the country's power, just after having produced 25% five days earlier. Bloomberg reported that the wind drought had increased day-ahead power prices to their highest level for that time of year for at least a decade.[xiii] This exemplifies the value of diversity, and the importance of maintaining dispatchable energy resources even as IREs are added to the grid.

However, there are also challenges associated with a diverse grid. For example, as more IREs are incorporated, many indirect system costs are passed on to dispatchable resources. (See Appendix 1C for a list of IRE indirect costs.) One of these cost elements is the "imposed costs" associated with using dispatchable generators to backstop non-dispatchable generators.[xiv] Dispatchable generators often cycle their output to match net load resulting from demand changes and shifts from non-dispatchable generators. Cycling coal-fueled units creates three major impacts:

- Lower net generation, resulting in a lower capacity factor and, generally, less revenue
- Lower total fuel consumption, but higher heat rate (i.e., lower efficiency), during lower power production periods, and
- Reduced plant life; in its work on this issue, EPRI has noted that "When operational cycling is introduced on a former baseload unit, the residual life can be greatly reduced to between 40% and 60% of the original design life because of the combined effects of creep and fatigue."[xv]

While the incremental costs involved in serving as an IRE-backstop are tangible and measurable, they are not currently compensated in most markets and, thus, can affect operators' decisions to prematurely retire a power plant and similarly reduce investment in plants' maintenance and longevity. As cycling increases, economic damage escalates, leading to premature retirement of dispatchable units (see Appendix 1D for a detailed assessment of renewable energy and dispatch). As discussed in Chapter 3, there are some technology improvements that would improve the ability of the existing coal fleet to support intermittent sources, while subjecting these coal plants to less damage and reducing incremental costs.



AMERICAN OVERSIGHT

## The Role of a Diversity in a Resilient and Cost-Effective Energy Portfolio

Resource diversity is critical to maintain a reliable and resilient grid, especially in the event of high impact-low frequency (HILF) events. Diversity helps maintain system reliability and the resiliency required to recover from HILF events.

In testimony in January 2018 before the U.S. Senate Energy & Natural Resources Committee[xvi] at a hearing on the performance of the grid under extreme weather conditions, the North American Electric Reliability Council (NERC) highlighted concerns with over-reliance on any one energy resource, noting reliance on a single fuel increases vulnerabilities (see Appendix 1E). More recently, in its 2018 Summer Reliability Assessment[xvii], NERC noted that "...the growing reliance on natural gas continues to raise BPS [Bulk Power System] reliability concerns." Texas ERCOT, for example, anticipates a Reserve Margin shortfall of 2,000 MW (13.75% Reference Margin Level vs. Anticipated Reserve Margin of 10.9%). One of the principal contributing factors in this shortfall is the largely premature retirement of 4,273 MW of coal capacity in January/February 2018.

In 2017, PJM released "PJM's Evolving Resource Mix and System Reliability," in which it concluded that PJM needs significant coal-fueled generation capacity to ensure a resilient grid, especially when encountering a HILF event.[xviii]

As U.S. Department of Energy (DOE) staff has noted, "Maintaining fuel diversity and security provides the best assurance for resilience. Premature retirements of fuel secure baseload generating stations reduces resilience to fuel supply disruptions."[xix]

The economic impacts of a less diversified energy portfolio were assessed by IHS Markit in its report on "Ensuring Resilient and Efficient Electricity Generation."[xx] Their analysis compared the existing U.S. electric supply portfolio in 2014–2016[1] with a projected less diverse supply portfolio[2], yielding the following conclusions:

- The current diversified portfolio lowers the cost of electricity production by about $114 billion/year and lowers the average retail price of electricity by 27% versus the less diversified portfolio. A 27% increase in retail power prices results in a decline of real U.S. GDP of 0.8%, equal to $158 billion (2016 chain-weighted dollars).
- The current diversified portfolio reduces the variability of monthly consumer electricity bills by about 22% versus the less diverse portfolio.
- A more diverse portfolio mitigates an additional economic cost of $75 billion/hour associated with more frequent power supply outages.
- Less efficient diversity involves a reduction of *one million jobs*.
- A less efficient diversity portfolio reduces real disposable income per household by about $845 (2016 dollars) annually.

[1] See Chapter 1, "Today's Coal Fleet" for a description of the current energy portfolio.
[2] See Chapter 2 for a discussion on future generation.



AMERICAN OVERSIGHT

## Coal's Unique Energy, Economic and National Security Benefits

*"Energy security is a roadmap to economic prosperity."*

*Secretary Rick Perry – CERA Week 2018*

Electricity drives the U.S. economy. Low electricity prices fuel the nation's commercial and manufacturing sectors and provide affordable power for all U.S. residents, including those with lower-incomes. U.S. power costs are partly driven by affordable fuel. In its 2018 Annual Energy Outlook, EIA projects that natural gas prices for electric power generation will increase by 34% in real terms between 2018 and 2040; coal prices are projected to increase 9% over the same period.[xxi]

Long-term national security is supported through continued use of domestic fuels. The remaining recoverable coal reserves in the U.S. are estimated to last more than 300 years at current usage rates. Furthermore, U.S. coal reserves are larger than remaining natural gas and oil resources based on energy content.[xxii]

To retain its competitive position in international markets and bolster a thriving economy at home, the U.S. needs to support policies and market approaches that ensure low electricity prices. In an assessment of the Levelized Cost of Electricity from Existing Generation Resources[xxiii], the Institute for Energy Research (IER) noted that "The lowest possible electricity rates will only be achieved by keeping existing generating resources in operation until their product becomes uneconomic – not relative to suppressed wholesale markets clearing prices but rather *relative to the levelized cost of electricity from new sources that would replace them*." See Figure 2 for a comparison of the levelized cost of electricity of different electricity sources.[xxiv]

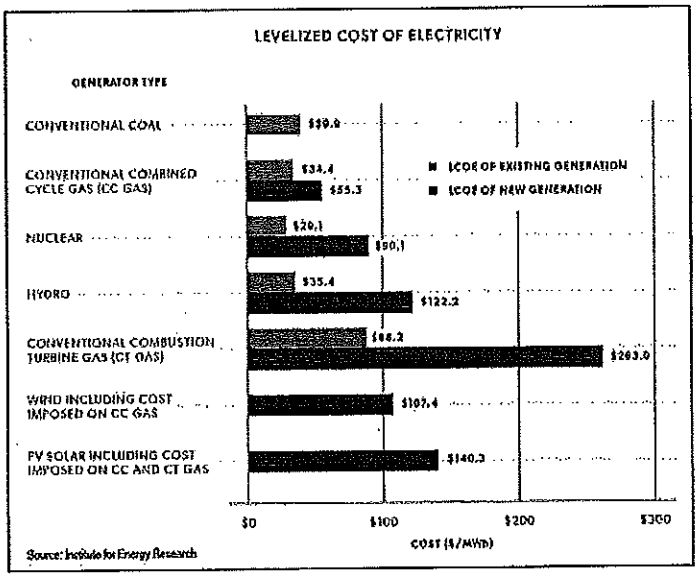



*Figure 2. Levelized Cost of Electricity*



AMERICAN OVERSIGHT

IER also points out that environmental regulations as well as subsidies and mandates for renewables are driving most new generating capacity construction, not new electricity demand (see Appendix 1F for additional information on subsidies). "FERC Form 1 and EIA 860 show that, in the absence of mandates, subsidies and regulatory compliance costs, the cost of electricity from almost all existing generation resources will remain less than the cost of electricity from their likely replacements for at least the next 10 to 20 years ... When electricity from an existing electric generating plant costs less to produce than the electricity from the new plant technology expected to be constructed to replace it – and yet we retire and replace the existing plant despite the higher future costs – ratepayers must expect the cost of future electricity to rise faster than it would have if we had instead kept the existing power plants in service."[xxv]

The net effect of adding capacity without an appropriate demand signal marginalizes the return on existing generation assets. This increasingly relegates coal assets to standby capacity in markets that clearly need, but do not appropriately value, this standby capacity.

## Coal's Role in Enhancing the Global Competitiveness of the U.S.

Maintaining a diversified, dispatchable energy portfolio allows the U.S. to maintain low electricity rates which, in turn, enhance the nation's competitiveness in international markets and provides lower rates for the residential sector.

The average U.S. residential consumer pays significantly less than its European counterpart, about one-half of the rate for the EU-28 countries and a third of that in the most expensive countries (see Figure 3A).[xxvi,xxvii] The composition of the residential European prices is broken out by the base price (without taxes and fees), other taxes and fees and VAT. The U.S. price is the composite price including all taxes and fees. In the two countries with the highest residential electricity prices, Germany and Denmark, over half of the cost to the consumer consists of taxes designed to subsidize renewable energy resources and meet other energy policy objectives.

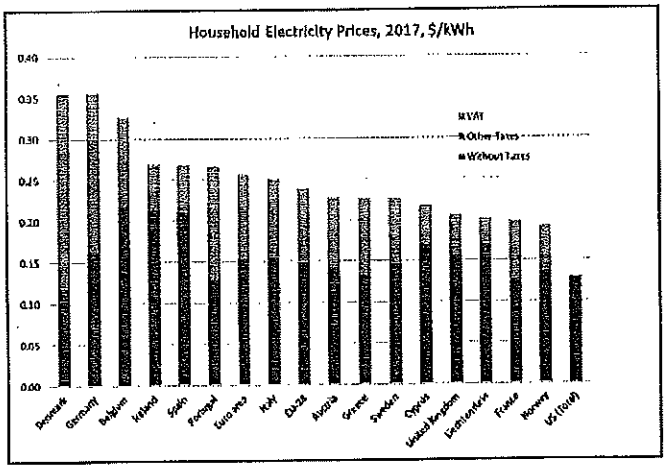



*Figure 3A. Residential Electricity Rates*



AMERICAN OVERSIGHT

The U.S. non-residential rate (commercial and industrial) is about 30% less than the EU-28 aggregate, and about half that of the highest price countries (Germany and Italy), for which 40–50% of the total rate consists of taxes and other levies (see Figure 3B). [xxviii,xxix]

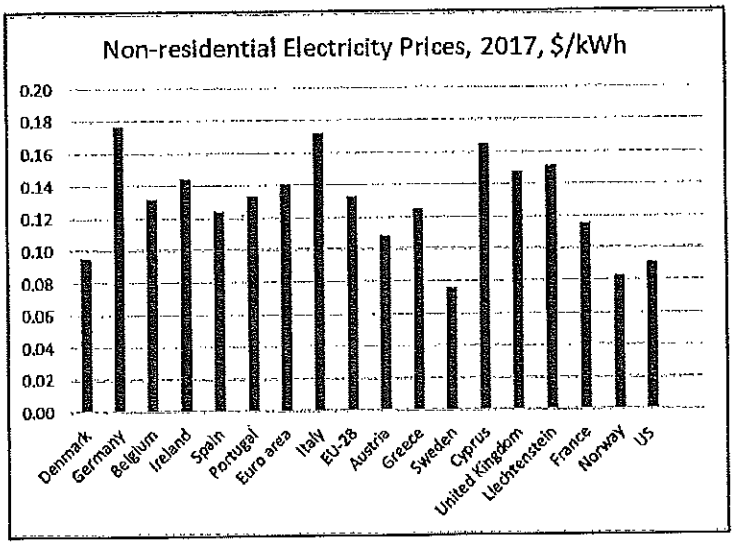



*Figure 3B. Non-residential Electricity Rates*

It is instructive to examine the lessons learned from other nations that have undertaken efforts to transition away from baseload power in pursuit of aggressively deploying renewable energy sources (see sidebar article on International Lessons Learned on page 19). The repercussions of these policies have been significant for both citizens and businesses operating in these countries.

In a comparison of U.S. and European Union (EU) approaches to energy policy, Robert Bryce with the Manhattan Institute[xxx] notes that as a result of "policy differences, electricity prices in Europe are far higher than in the U.S. for both residential and commercial consumers ... The average U.S. household pays about a third of what the same electricity costs in Germany and European steelmakers now pay twice as much for their electricity as do U.S. manufacturers."

Bryce estimates the net effect of the U.S. adopting a renewable energy goal akin to that of the EU would increase our nation's monthly residential bills by about 29%. He concludes that "For decades, the U.S. economy has prospered thanks to cheap, abundant, reliable supplies of energy. Domestic policymakers should focus on ensuring that this remains the case. Therefore, they should not follow the EU's lead. Instead, they should eliminate renewable-energy subsidies and remove excessive restrictions on coal-fired electricity generation plants."



AMERICAN OVERSIGHT
EXT-18-2615-G-000091

The impact on electricity cost of varying U.S. state energy policy can also be observed. For example, comparing the state-specific price paid for electricity with the fraction of coal-fired generation reveals that states that generate little or no coal-fired electricity pay the highest electricity prices, with the exception of Oregon and Idaho where hydroelectric represents more than 60% of generation. Thirteen (13) states generate more than 50% coal-fired electricity, and nine (9) states generate less than 2% coal-fired electricity. The average price paid for electricity in these states are compared in Figure 4. On average, the low coal generation states pay 160% of the price of electricity compared to the high coal generation states.

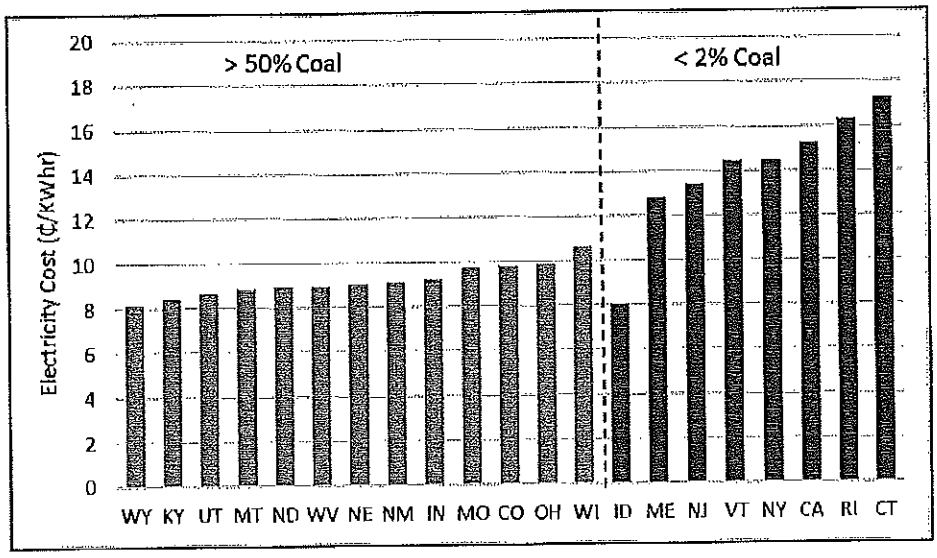



*Figure 4. Comparison of Electricity Costs for States in the Contiguous U.S. Using the Highest and Lowest Fractions of Coal-fired Electricity*

States that rely heavily on coal for electricity generation also produce more goods as a fraction of overall state GDP. Figure 5 compares the fraction of state GDP for goods or services for states who generate 50% or more electricity from coal, and those that generate less than 10% of electricity from coal.[xxxi] As shown, the GDP in high coal-generation states is more than twice as reliant on goods produced compared to low coal generation states. In the low coal generation states, services are a more important component of state GDP, representing over 70% of state GDP.



AMERICAN OVERSIGHT

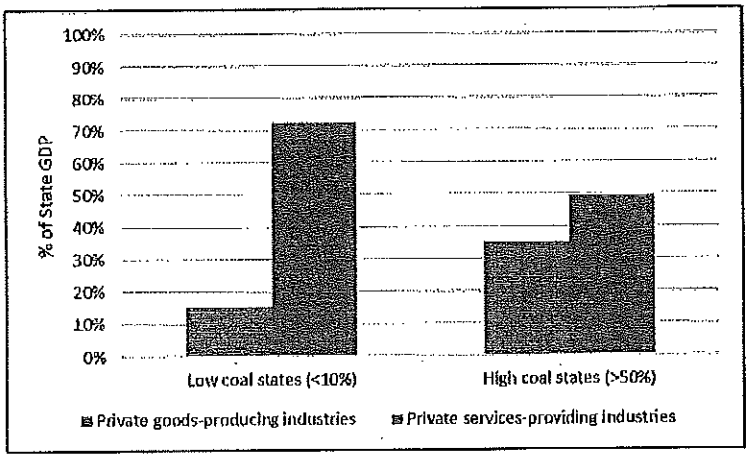



*Figure 5. State GDP Distribution for High and Low Coal Generation States*

## Today's U.S. Coal Fleet

At the end of 2017, the U.S. existing coal fleet that provides the many outlined benefits was made up of approximately 253 GW of generating capacity, with a 2017 net generation of 1,184,681,507 MWh, representing nominally 53% of the available generating capacity. The capacity-weighted average age of these plants was 40 years. The age distribution by generating capacity and average operating capacity factor, or MWh produced compared to the total possible MWh based on plant generating capacity, for plants operating in 2017 is shown in Figure 6.[xxxii] The capacity factor for the newest plants is over 70%, compared to 50% or less for plants more than 46 years old indicating that, in general, newer plants operate more often than older plants.

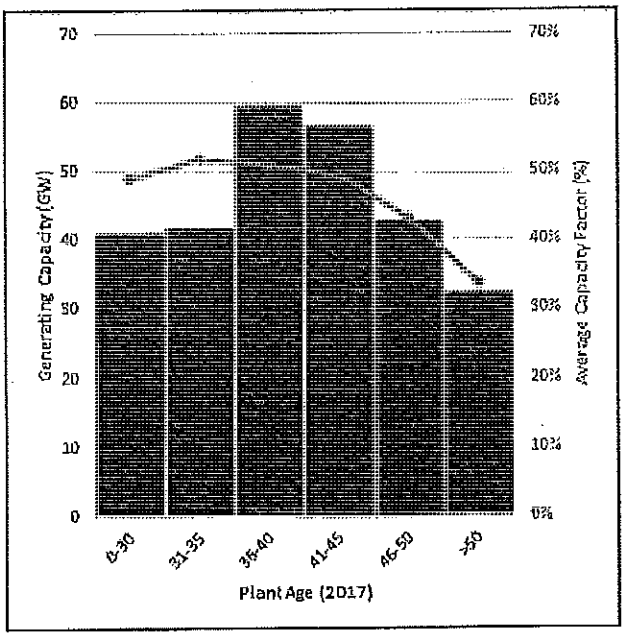



*Figure 6. U.S. Coal-fired Fleet Age in 2017 and Respective Average Generating Capacity Factor*



AMERICAN OVERSIGHT
EXT-18-2615-G-000093

In 2005, approximately 325 GW of coal-fired generating capacity was in operation in the U.S. Based on EIA data, 51% of these plants had retired by 2017, representing approximately 79 GW, or 24% of the 2005 generating capacity. The average size of a unit in the U.S. fleet was 231 MW in 2005 and the average size of the units retired since then was 109 MW. Since 2005, 27 GW of new coal-fired generation has been added – although no additional plants are being built or planned today – and the average size of operating units in 2017 was 364 MW. Thus, from 2005 to 2017, many smaller and older plants retired, as shown in Figure 7.[xxxiii] Information on the location and size of coal-fired power plants in operation in the contiguous U.S. at the beginning of 2018 is included in Appendix 1G.

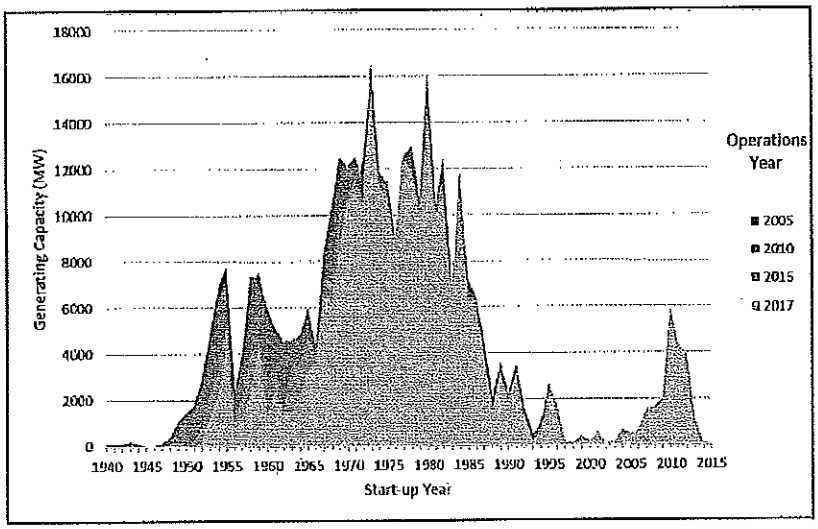



*Figure 7. Start-up Year and New Generating Capacity for Plants Still in Operation in 2005, 2010, 2015 and 2017*

The U.S. coal-fired electricity generating units that retired between 2005 and 2017 have largely been replaced by alternatives – mostly gas-fired generation with some IREs, the effects of which are shown in the net generation by fuel source depicted in Figure 8. This also corresponds to a decrease in average cost of natural gas-fired generation over the same period.



AMERICAN OVERSIGHT

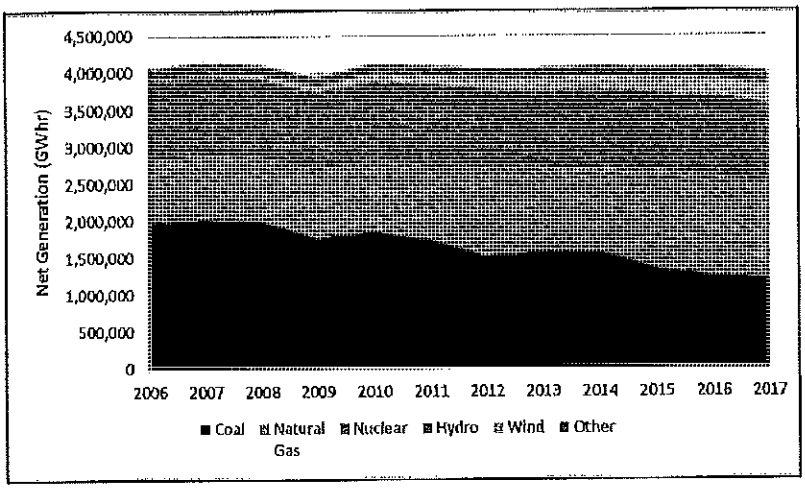



*Figure 8. Net U.S. Electric Generation for 2006 to 2017*

## Evolution of the Existing U.S. Coal Fleet: Historic Drivers

It is instructive to examine the evolution of today's coal fleet as a basis for defining the best path forward. Coal power plant retirements since the turn of the century have been driven by numerous factors, including competitive pricing from other fuel resources, federal and state energy and environmental policies, declining electricity demand, inadequate funding for technology innovation, and societal pressures.

Cost Considerations

*Natural Gas Prices.* The new economics associated with natural gas has been one of the most significant triggers for coal generating unit retirements. This change in economics began with the emergence of an unprecedented increase in natural gas supplies within the U.S. resulting from the development of shale gas reserves. The decline in natural gas prices began in 2009 because of both the 2008 economic recession and associated decreased demand for generation and also the increase in natural gas supply.[xxxiv]

The shale boom emerged around 2006–2007 when hydraulic fracturing practices made previously inaccessible gas sources economically and technically recoverable. With this abundance, natural gas prices fell from an average of over $7/MMBtu from 2003–2008 to an average of $3.20/MMBtu in the period from 2012–2016. Typically, natural gas prices at $3/MMBtu can result in simple cycle natural gas combustion turbine (CT) units and the more efficient natural gas combined cycle (NGCC) units being dispatched ahead of some coal units, possibly even some highly efficient supercritical coal-fired units. A price of $4/MMBtu will cause CT and NGCC to be dispatched ahead of some subcritical and older coal-fired units. Thus, the decline in natural gas prices triggered retirement of smaller, older coal plants and as natural gas prices remained in this range, retirements continue. With abundant supplies from the Marcellus and Utica shales, along with construction of natural gas pipelines, natural gas price volatility has reduced (see Figure 9).[xxxv]



AMERICAN OVERSIGHT

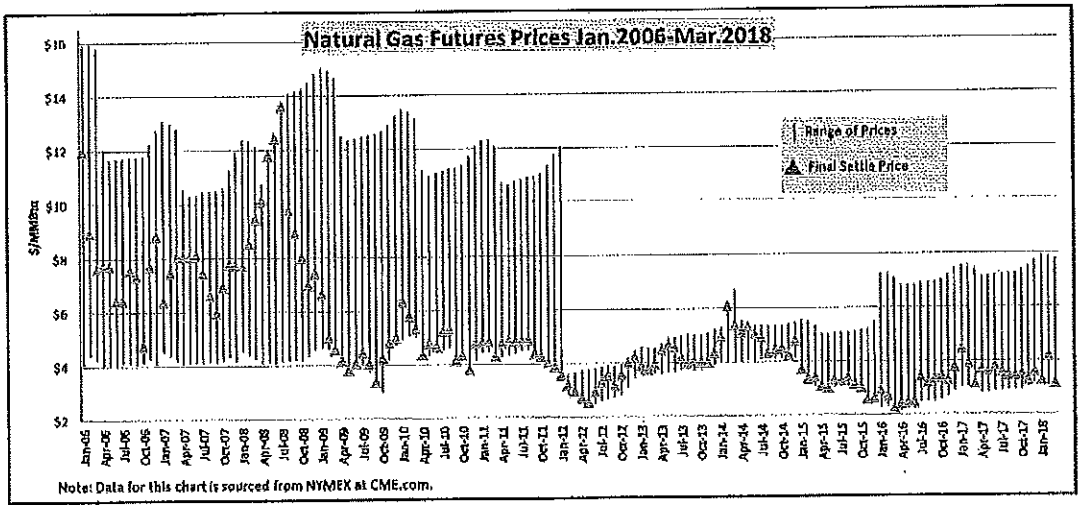



*Figure 9. Natural Gas Futures Prices January 2006–March 2018*

*Renewable Energy Pricing - Impacts of PTC and ITC.* As reported in the National Coal Council's (NCC) report on Policy Parity,[xxxvi] subsidies, mandates and other policies for IREs have tilted the playing field for wind and solar energy, competitively disadvantaging existing coal generation. Reports from EIA[xxxvii] and the Congressional Research Service[xxxviii] (CRS) confirm the significant disparity between energy subsidies for renewables and for fossil fuels. The EIA report documents that between 2010 and 2016, renewable energy's share of energy-specific subsidies and support increased from 42% to 45%; coal's share for the same period increased from 2% to 8%. Earlier EIA assessments noted that in 2013, renewables received more than 12 times the subsidies as received for coal — $13.277 billion for renewables and just $1.085 billion for coal.

Financial support available to renewable energy suppliers under the Internal Revenue Code Section 45 Production Tax Credit (PTC) and Section 48 Investment Tax Credit (ITC) has not only provided revenue to IREs, but has reduced revenue to fossil and other generators, many of whom have left the market in recent years as a result. Later sections of this report detail the potential fossil generation benefits associated with recently enacted revisions to 45Q and 48A tax credits, as well as the need for transparency in electricity markets that fully accounts for the all-in cost of energy resources generating electricity that consumers are buying.

In fact, the value of the renewable energy PTC artificially lowers the variable costs of wind generation that is bid into the market relative to non-subsidized generation. This disparity has enabled renewable energy producers to sell into energy markets at low – and at times even negative – prices, which has the effect of reducing market prices for non-subsidized fuels, such as fossil and nuclear (see Chapter 3 for a more detailed discussion of impacts of renewable energy PTC/ITC on wholesale electricity markets).



AMERICAN OVERSIGHT

Regulation

*Environmental Regulations.* Existing and proposed environmental regulations with compliance deadlines between the years 2010–2017 factored into retirement decisions for coal-fired generating units that were already economically marginalized due to the competition from low natural gas prices and mandated deployment of renewable technologies. Capital investments required to meet regulatory requirements were best made on newer and more efficient coal-fired power plants leaving the already marginalized, and typically older, coal-fired units likely to retire. According to estimates by industry organizations, of the more than 115,000 MW of retired, converting or planned retirements, nearly 77,000 MW are explicitly attributed to U.S. Environmental Protection Agency (EPA) existing and proposed regulations/policies (from 2010–2030).[xxxix] In its Staff Report for Secretary Perry, DOE noted that 48,800 MW of coal-fired generation capacity retired from 2002–2016, when environmental regulations were forcing a decision to either retire or upgrade.[xl]

Key regulations that drove, or are believed to be driving, retirements are detailed in Appendix 1H. The regulation that resulted in the greatest number of retirements in one year was the Mercury Air Toxics Standards (MATS) Rule. Other regulations, including those that could be even more costly to meet, had later implementation deadlines so if the MATS Rule had not already triggered closure, these regulations might have.

In 2015, the same year for which MATS compliance was required, EPA finalized the Clean Power Plan (CPP). Although CPP was later stayed by the U.S. Supreme Court, the ensuing regulatory uncertainty was likely a consideration when weighing retirement decisions. The prospect of future $CO_2$ regulation, and regulatory uncertainty in general, may also have impacted consideration of investments in new and existing coal plants as there is little certainty that investments will get a fair opportunity to be earned back. There is an argument to be made that environmentally permitted investments should be given the opportunity to earn their value over their useful life or just compensation should be due if that opportunity is denied.

*State Energy Policies.* States have exercised considerable control over the electricity market through legislation that affects how and how much electricity is generated. Among the most significant of these are Energy Efficiency Resource Standards (EERS) and Renewal Portfolio Standards (RPS), which grew in prominence from about the year 2000. A comprehensive source of state-by-state information on EERS and RPS programs is the "Database of States Incentives for Renewables and Efficiency" (DSIRE).[xli]



AMERICAN OVERSIGHT

Energy Efficiency Resource Standards

An Energy Efficiency Resource Standard (EERS) is a mandatory requirement imposed by a state on electricity, and in some cases natural gas utilities, to reduce end use consumption by specific amounts by specific dates. Twenty-six states have implemented EERS programs. In addition, most other states have some form of electricity efficiency programs implemented by the utilities or by the state on a voluntary basis. The majority of the EERS programs became effective between 2000 and 2010. The American Council for an Energy-Efficient Economy (ACEEE) estimated that total electricity savings in 2014 was approximately 180 billion kWh[xlii] or 4.4% of the total U.S. electricity consumption in that year. The energy savings in 2016, the most recent reporting year, was approximately 230 billion kWh, or about 5.5% of total U.S. demand.

Renewable Portfolio Standards

An RPS is a state law requiring electric utilities to sell a certain portion of their electricity from or maintain a certain portion of the generating capacity as renewable sources. According to the National Council of State Legislatures (NCSL), 29 states had enacted RPS legislation by August 2017. The NCSL reports that "Iowa was the first state to establish an RPS and Hawaii has the most aggressive RPS. In many states, standards are measured by percentages of retail electric sales. Iowa and Texas, however, require specific amounts of renewable energy capacity rather than percentages and Kansas requires a percentage of peak demand. Twenty (20) states and Washington, D.C., have percentage-based cost caps in their RPS bills to limit increases in ratepayers' bills. One state caps RPS gross procurement costs." [xliii]

Technology Considerations

Through the Office of Fossil Energy, DOE at one time had a dedicated program – "Innovations for Existing Plants" – that supported R&D targeted at existing coal units. Technologies supported in the program included mercury and air toxics control technologies, particulate matter control technologies, water cooling and other types of water management technologies, as well as coal combustion byproduct processes. In 2009, DOE refocused the program exclusively on carbon capture retrofits for existing coal plants, phasing out all other existing plant R&D. Eventually, this program was renamed the "Carbon Capture" program.

Since then, every CURC-EPRI Roadmap[xliv] that has been published has identified the need for a dedicated existing plant program to support R&D on innovative techniques for heat rate improvement, water management as it relates to existing units specifically, and improvement of both performance and operations of criteria emissions control systems that are operating in a much more flexible mode than originally designed.[xlv] However, no funding has been made available for R&D specific to the existing fleet over nearly a decade, at a time when increasing amounts of renewables and competition with natural gas are forcing existing coal units to ramp up and down, significantly contributing to the wear and tear of those units that are designed to run in a steady baseload state.



AMERICAN OVERSIGHT

The additional operation and maintenance (O&M) costs associated with operating baseload plants in a cycling mode has influenced operators' decisions to retire coal plants. Insufficient R&D funding and a lack of a dedicated DOE Existing Plants R&D program for development of technologies to support existing fleet operations in a flexible mode have also contributed to coal plant retirements. Technology options to reduce the impact of cycling, including heat and energy storage, are included in Chapter 3.

Societal Considerations

Public perception of coal has shifted dramatically over the past few decades as evinced by:

- Imposition of national and state policies in opposition to the development of coal production, transportation and consumption facilities
- Shareholder and advocate demands for divestiture of coal-related stock holdings
- National and local environmental NGO campaigns deriding coal and advocating for the closure of coal facilities
- Climate change advocate initiatives targeting coal as the primary culprit
- State government and advocacy group opposition to development of coal export infrastructure projects[3]
- International development bank and government reluctance to support deployment of advanced coal technologies

Also, as detailed in Chapter 2 (Societal Pressures), there has arisen over the last few years a belief that renewables can reliably and cheaply provide 100% of U.S. electricity needs. This perception has fostered public pressure on policymakers and companies to support the rapid growth of IREs. There has also been a lack of valuation of the importance of diversity and the role played by the existing coal fleet, which has facilitated the retirement of coal power plants. Improved transparency about the inherent costs and benefits associated with all energy resources and the value of a diverse energy mix will provide a more reasoned approach to energy decision and policy making.

## Conclusion

A mere 50 years ago, coal was lauded as a champion for providing an affordable, secure domestic solution to combat OPEC's energy stranglehold. In responding to that call, U.S. coal producers, transporters and power generators established a world-class network to provide the U.S. with affordable, reliable electric power. Today, that coal network continues to demonstrate its value by enhancing the reliability and resilience of our nation's energy grid, even as the grid is rapidly changing.

[3] See the National Coal Council's report on "Advancing U.S. Coal Exports" (September 2018) for a discussion of initiatives in opposition to coal export port developments and financial community proscriptions against international coal facility development, www.nationalcoalcouncil.org.



AMERICAN OVERSIGHT

## International Lessons Learned

The headlines are revealing:

- "Germany shows how shifting to renewable energy can backfire"[xlvi]
- "German household power prices at record high"[xlvii]
- "Why South Australia's blackouts are a problem for us all"[xlviii]
- "South Australia power prices to rise to highest in the world"[xlix]
- "Ontario household electricity prices to rise 52 percent from 2017 to 2035"[l]
- "Ontario's power-price crisis – how did happen and who got hurt"[li]

The U.S. can learn from the hard lessons of other countries as they consider the importance of baseload power supplies and sustained utilization of existing utility assets. Other regions and countries, such as Germany, Australia and the province of Ontario (Canada), have experienced the negative impacts of aggressively pursuing renewable power at the expense of coal-fired baseload systems. Affordable, reliable and resilient electric supply is not only the cornerstone of manufacturing and the economy, it is critical to low income families. Higher energy costs result in these families having to expend a larger percentage of their household budget on electricity, reducing funds available for other household essentials such as food and medicine.

Germany has been one of the world leaders in the pursuit of increased renewable energy at the expense of baseload coal power and nuclear power. Germany has ramped up renewable power for over two decades and currently generates about 40% of its electricity from renewables. As a result, the country has some of the highest electricity costs in the world and residents are also paying additional taxes to cover the buildup of renewable power. Recently, Germany has begun reintroducing coal generation to its electricity portfolio in order to deal with the intermittency of their renewable power supply.

Similarly, Australia has incurred power price increases and outages over recent years as a number of coal plants have shut down. This has been especially true in South Australia where renewables provide around 40% of the region's power. While outages can be attributed to many factors, increased intermittent renewables and coal plant retirements are a large part of the equation.

In North America over the past decade, Ontario Canada has transitioned to more renewables, retiring coal-fired power plants and relying on nuclear power for baseload energy. During this transition period, power prices in Ontario have increased roughly four times the rate of inflation and can vary broadly over time depending on the availability of renewable generation. Again, we see that energy policy and retirement of existing coal-fired utility assets can have significant consequences on energy pricing.

These international examples demonstrate the need for well thought out energy policies that maintain coal-fired generation in the mix. This will prevent negative impacts on our industry, economy and low-income households.



AMERICAN OVERSIGHT

# Chapter 2: Outlook for Coal Generation

## Key Findings – Chapter 2

- **The U.S. power fleet is experiencing significant and rapid changes, presenting challenges to forecasting the outlook for power generation. Assessing the future of the nation's generation portfolio will require evaluating many varied risk factors taken into consideration on a cumulative basis.**
- **Data on currently announced coal plant retirements do not capture all of the market dynamics that are prompting plants to retire and may be underestimating the loss of these critical generating and grid stabilization resources.**
- **Regulations, staffing constraints and societal pressures will continue to hamper efforts to preserve and optimize the existing coal fleet.**
- **Coal-fired generating capacity is likely to continue to decrease barring a proactive initiative to assess and take action to compensate the existing coal fleet for the value it provides in maintaining the diversity and stability of the U.S. power grid.**
- **There is a need for greater transparency in the comparative analysis of fuel resource options.**

## Introduction

The U.S. power fleet is experiencing a period of rapid changes, which is making it challenging to forecast the outlook for power generation. Substantial year-over-year differences in projected future coal plant retirements are one indication of the uncertainty of these predictions. Many influences are aligning to force the retirement of coal plants and fundamentally alter the makeup of the U.S. electric generating system. This chapter brackets the trajectory of the existing coal-fired generation and addresses several of the key drivers for change.

Some impacts on the generation fleet are cumulative, such as the impact of load cycling on maintenance costs and expected life of power plants. Reliability projections tend to underestimate the impact of current operating conditions on coal plants, as can be seen by comparing projections of future capacity factors to recent operational data from existing coal plants. The result of load cycling may be sharp increases in electric generation costs, much larger than anticipated in current economic projections. A rapid decline in baseload and dispatchable power due to an accelerated aging of the fleet could also severely reduce power supply reliability unless the overall system can be structured to absorb these changes, especially during extreme weather conditions.



AMERICAN OVERSIGHT

Other important factors include the social sentiment towards coal and lack of public understanding of its critical role in supporting the power grid. As explained in Chapter 1, this has resulted in more regulation, renewable power standards and limited market incentives for many of the attributes that coal plants bring to the grid and electric market, as well as consumer preference and Boardroom pressure for IRE generation. Although customer preference is sometimes assumed, and surveys show that while people state a willingness to pay more for electricity that is renewable-sourced, the reality is that few actually sign up to pay more, indicating that cost remains of high importance.[lii]

Consumers have come to assume that the grid will reliably supply power into the future. However, in some cases this reliability has come on the back of coal, nuclear and even oil (electric sources with onsite fuel storage). This was perhaps best demonstrated most recently during the Bomb Cyclone – the term used to describe the extreme cold weather system that challenged the grid in the U.S. East Coast – in December 2017 and January 2018 (see sidebar article page 30 on high impact low frequency events). Power reliability is perceived as a long-term sustainable mode of operation, even while the coal-fired generation that underpins system stability is being retired. Maintaining stability of the grid during a shift toward new generation sources, including the role of the existing coal fleet, is a critical role for the Department of Energy.

## Generation Mix Projections

Several sources have estimated the future generation mix and the range of predictions is broad. From 65 to 100 GW of coal-fired power is predicted to retire by 2030. EIA predicts in its 2018 Annual Energy Outlook[liii] (the source of Figure 10 and Figure 11 below) that coal-fired power will remain flat from 2030–2050. At the other end of the spectrum, Bloomberg NEF's New Energy Outlook 2018 predicts that by 2050: "Coal and nuclear are pushed out by age and economics, such that by 2050 both nuclear and coal have almost disappeared from the electricity mix."[liv]

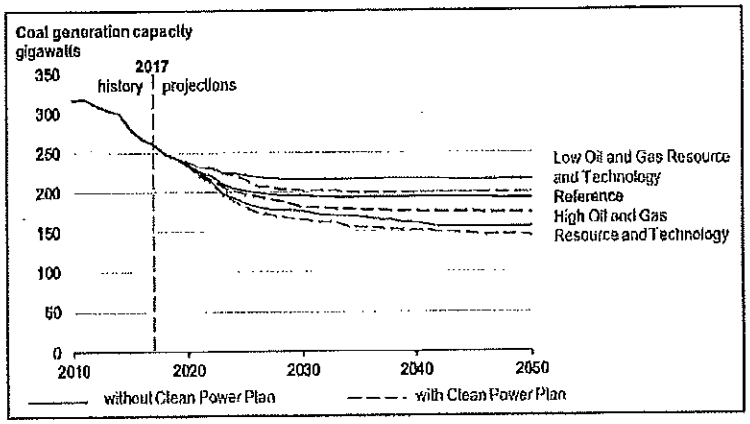



*Figure 10. EIA U.S. Coal Generation Capacity[lv]*



AMERICAN OVERSIGHT

Navigant predicts approximately 73 GW of coal-fired power will retire in the next ten years, and has said, "That's more than twice what we projected last year at this time. It's more than we had two years ago when the Clean Power Plan was in the assumptions."[lvi]

As a result of these declines, coal generation is anticipated to lag well behind both natural gas- and renewable-based generation by 2050, while remaining slightly ahead of nuclear according to EIA (see Figure 11). Coal plant retirements are anticipated to continue through 2022, before coal generation stabilizes at about 1,200 billion kilowatt hours through 2050.[lvii] However, the likelihood of flat-lined generation is very low given the age, competitive environment and deteriorating conditions of coal-fired plants. As addressed later in this chapter, a lack of investment incentives and increasing risk factors will most likely result in more dramatic declines in both generation and capacity of coal-fired power plants than are currently projected by EIA.

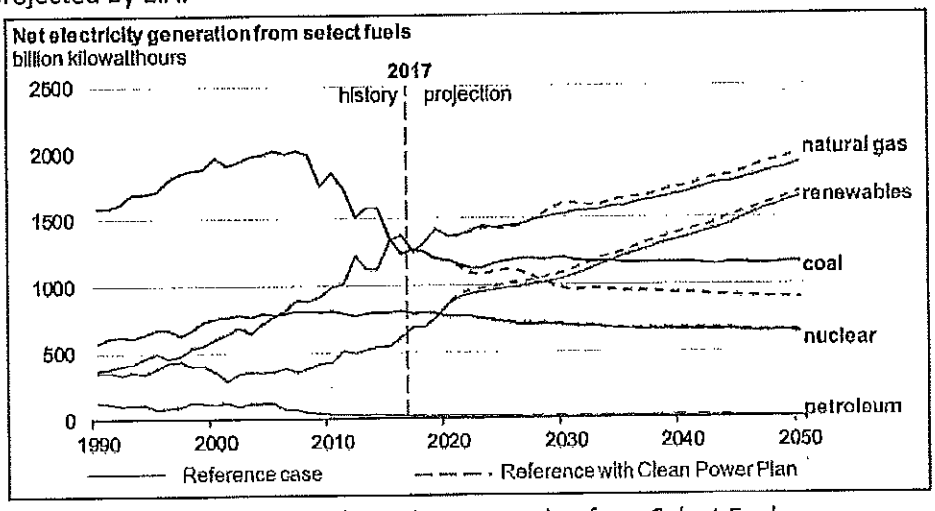



*Figure 11. Net Electricity Generation from Select Fuels*

These declines are also described in a current DOE National Energy Technology Laboratory (NETL) study on the existing fleet, which identified an implicit capacity gap attributed to coal unit aging that could result in up to 75 GW of coal retiring by 2025. This should be of great concern given the critical role coal plays as part of a diverse energy mix, including during severe weather events, such as the Bomb Cyclone event in early 2018. "The 30 GW of coal that ramped up to meet the surge in PJM load clearly includes the units most likely to retire due to insufficient market support, given those units were not running at baseload levels before the event."[lviii] This report on the Bomb Cyclone is described in further detail later in this chapter.

Numerous analyses indicate that without appropriate mechanisms that value the diversity, reliability and resiliency provided by the existing coal fleet, the downside capacity predictions are much more likely than the EIA flat line projections. Additionally, many factors driving coal generation downward will have a cumulative impact. Chapter 2 focuses on the outlook for coal and factors that could affect coal generation into the future.



AMERICAN OVERSIGHT

## Coal Generation Trajectory Basis

As shown in Figure 10, EIA expects U.S. coal-fired electric generating capacity will continue to decrease from 2017 through 2030 by approximately 65 GW, then remain relatively stable at a level of approximately 190 GW through 2050. This comes on the heels of a net decrease in coal-fired electric generating capacity of nearly 60 GW between 2011 and 2016. As noted previously, currently announced retirements do not capture all of the market dynamics that are prompting coal plants to retire, and these data likely underestimate the loss of these critical generating and grid stabilization resources without tailored action to save them.

Factors that EIA cites for causing these expected declines include: (1) competitively priced and growing natural gas production; (2) environmental regulations; and (3) increasing renewables generation due to improvements in technology and economics as well as various incentives and mandates. EIA forecasts that wind and solar generation will account for 64% of total electric generation growth through 2050, with natural gas usage for power generation also expected to increase over the same period. In terms of renewables, generation from solar PV is expected to surpass that from wind by approximately 2040, with the gap between the two continuing to grow in favor of solar PV thereafter.

These nationwide figures mask a significant amount of variation in the generation mix at the state and regional level. For example, California has no coal-fired generation in-state, but significant amounts of generation from natural gas and renewables.[lix] However, about 5% of California's electricity is coal-fired generation from other states. In 2015, at times as much as 50% of southern California's power was generated by coal via these inter-state imports.[lx]

Georgia, in contrast, relies primarily upon electricity generated from natural gas, nuclear and coal.[lxi] Due to a host of factors, from resource availability to state and regional energy and environmental policies, electricity generation mix variability is also reflected in the Integrated Resource Plans filed by utilities throughout the U.S.[lxii]

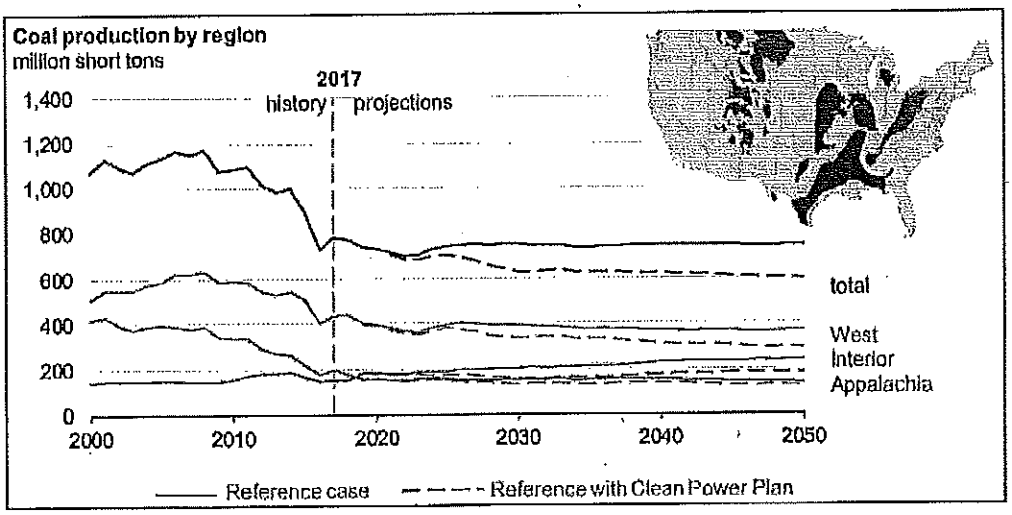



*Figure 12. EIA Annual Energy Outlook 2018 Coal Production by Region*



AMERICAN OVERSIGHT

The impact of these retirements on coal demand, and thus production, is somewhat predictable. According to EIA, coal production continues to decline – from 784 million short tons (MMst) in 2017 to 699 MMst in 2022, then rises slightly in the mid-2020s to 750 MMst, before leveling off through 2050 (Figure 12).

Numerous private sector estimates and forecasts expect greater declines than are shown in the EIA estimates. For example, IHS has predicted that about a third of the U.S. coal fleet (about 100 GW) will retire in the years ahead.[lxiii] And while energy forecasting is an imprecise science, and the need for greater transparency in the comparative analysis of fuel resource options remains, the broad consensus is that coal's past position as the dominant fuel source for electricity generation remains under economic and policy pressure for the foreseeable future.[lxiv]

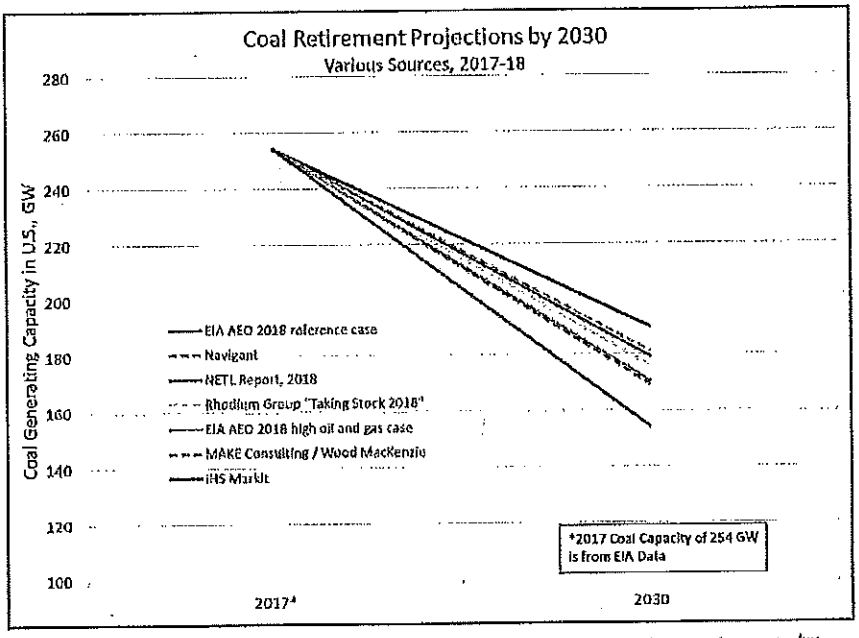



*Figure 13. Coal Generation Retirements Projected through 2030*[lxv]

Figure 13 depicts various projections of coal generation from several analyses. Each year the predictions for coal plant retirements become more severe as awareness of the multiple factors and cumulative impacts of these factors are assessed. These very real factors lead to increased risk for coal-fired power plants, which must be managed against other pressures prompting a move away from coal.

Among the factors specifically influencing decisions to retain or retire coal generation assets are economics, unit age, unit size, impacts of load cycling, staffing, existing and future regulations and societal pressures.



AMERICAN OVERSIGHT

## Economic Pressures

The economic pressures on the power generation and distribution industry have created considerable uncertainty in financial decision-making regarding generating stations. Pricing curves tell the story well; pressure from low natural gas pricing is evident on average costs, as shown in Figure 14.

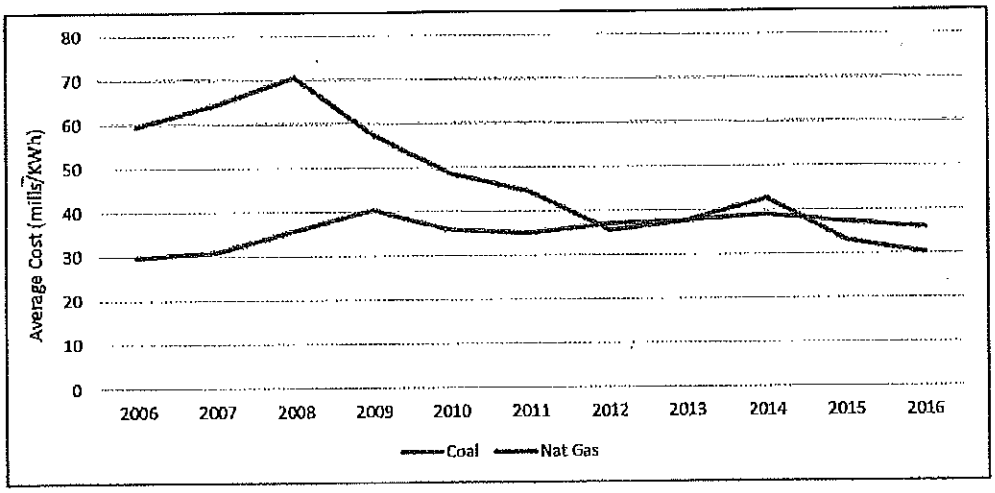



*Figure 14. Average Power Plant Operating Expenses for Major U.S. Investor-owned Units*

The EIA forecasts that U.S. natural gas prices to electric utilities will increase much more rapidly than coal prices. In its most recent Annual Energy Outlook (2018)[lxvi], EIA projects that natural gas prices to the electric power sector will increase at an annual average rate of 3.7% through 2050; whereas, for the same period coal prices will increase at an average of only 0.4%. In 2050, natural gas prices are forecast to be nearly five times as high as coal prices.

In the years to come, economic considerations associated with investments in aging assets will continue to exert pressure on generators to retire coal power plants. Recent years have seen reduced funding for O&M activities at coal-fired units, with little capital expended to replace aging equipment. As a result of these financial restrictions, many stations are now operating with limited redundancy in critical systems and deteriorating material conditions. This creates a situation where the rated capacity has not changed, but the reliability could be significantly less. If the U.S. plans to continue to rely on the existing coal fleet, the reliability and resiliency attributes will need to be compensated. Otherwise, uncertainty and other factors will lead to continued lower investment levels and reliance on these plants to continue to operate reliably, and at an only slight increase in O&M expenditures, is unrealistic. Thus, the flat operating expenses indicated by Figure 14 is likely unsustainable going forward.



AMERICAN OVERSIGHT

Given competition with natural gas and that IRE resources dispatch ahead of firm, dispatchable plants, many coal plants are cycling. Increased cycling results in increased capital expenditures, increased O&M costs, increased outages and higher fuel consumption. The need for coal and other forms of dispatchable generation (e.g., nuclear) to backstop IRE poses an interesting conundrum when generators' costs of operations increase for these cycled plants. When dispatched less, these coal and nuclear plants receive less investment, contributing to their decline.

Unit age, load cycling, staffing impacts and costs of existing and potential future regulatory compliance add further costs that cumulatively contribute to decisions to shutter the nation's coal plants.

## Unit Age

The projected age of the coal fleet in 2040, incorporating EIA 860 data from 2016, is shown in Figure 15. The average unit in 2040 will be 66 years old; many of these older units will presumably be retired prior to 2040. Other analyses have shown that the capacity factor for coal plants drops with age, with a steady loss that becomes more dramatic as the unit reaches 40 to 50 years of age. This age of the existing fleet as shown in Figure 15, as well as in projections by NETL showing that capacity factor shifts downward corresponding to age, with units losing at least 20% of actual capacity factor by age 51.[lxvii] The additional maintenance costs and potential need for upgrades for these aging facilities are significant. Yet cost is not the only barrier. As addressed elsewhere in this report, New Source Review (NSR) requirements add additional burdens and barriers to improving efficiencies that could make coal plants more competitive.

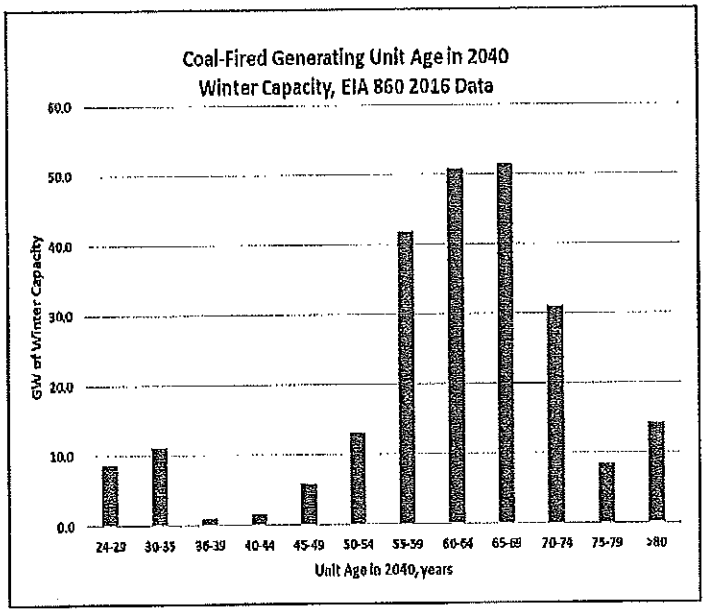



*Figure 15. Projected Unit Ages in 2040 without Further Unannounced Retirements*



AMERICAN OVERSIGHT
EXT-18-2615-G-000107

With the challenging economics and uncertainty of environmental regulations' impact on coal plants, state regulated Investor Owned Utilities (IOUs) may have the opportunity to retire coal plants and replace the capacity with alternative generation, such as natural gas plants. This option could increase earnings opportunities for the IOUs, if earnings are based on its capital investment. With this incentive to shareholders, it is important that the IOUs and their regulators appropriately recognize the reliability and resiliency benefits of coal generation to the customers in its resource decisions.

## Staffing Impacts

At utilities, the favorable career path was traditionally to work at plants for many years, or gain expertise and move among plants or upward to a corporate position. Today, this path is truncated or eliminated for early-career entrants. Desirable positions are shorter-term; many staff who have had the extensive exposure and training needed to run a plant are moved around.

The staff with broader expertise at plants are aging along with the plant equipment itself. Retirements of plant personnel and the associated loss of expertise is rampant, and this has direct impacts on quality of maintenance, plant knowledge and decision making. Strapped coal plant owners cannot afford to incentivize or retain staff, continually consolidating positions as attrition occurs, and cannot offer a promise of long-term positions at the many plants being evaluated for retirement. In addition to the challenges to staffing at plants, the scientists, researchers and engineers that will develop and deploy the next generation of coal technologies cannot be sustained without sufficient funding and continued commitment. Investment is needed to fill the pipeline of future works that will be needed to sustain the coal fleet as well as new technologies.

The status of industry staffing was studied several years ago showing that the expertise needed to keep these plants going has been an ongoing concern. For example, a National Academy of Sciences study published in 2013 concluded that most energy and mining industry workers were over age 45 and a retirement bubble was anticipated, all while recruitment of qualified entrants was already a challenge.[lxviii] The loss of long-term staff who experience and then share the history of plant equipment, operations and problem solving is difficult to quantify. One impact is increased costs due to utilization of expert outsiders as in-house expertise decreases. Another impact is increased risk in the areas of environmental compliance, safety and equipment reliability as redundancy of core knowledge dissipates. Both cost and risk are key factors driving decisions to retire these plants.



AMERICAN OVERSIGHT

## Regulations[4]

The regulatory environment for coal plants has become increasingly challenging over the past few decades and is a significant contributor to plant operating and maintenance costs. As the costs associated with regulatory compliance increase, coal plants become increasingly vulnerable for retirement. Among the regulations that continue to impose costs on coal plant operators are NSR, the Coal Combustion Residuals (CCR) rule[5], and the Effluent Limit Guidelines (ELG). During the preparation of this report, EPA released its Affordable Clean Energy (ACE) plan, which focuses on inside-the-fence efficiency improvements to coal power plants rather than system wide changes that characterized the Clean Power Plan (CPP).[lxix]

Protecting the environment is a core value of the utility industry, which has significantly reduced emissions over the past decades. Nonetheless, the combined impact of regulations that target coal plants is significant.

## Societal Pressures

As discussed in Chapter 1 (Societal Considerations), over the last few years, shifts have occurred in public perception that have already had a major impact and will continue to have a dramatic impact on the grid in the future. Two areas are significant. One is the criticism of coal and lack of transparency as to the benefits of the electricity system's current dependence on this critical resource. The second is the perception that renewables, led by wind and solar generation, are able to reliably and cheaply provide 100% of U.S. electricity needs. The common theme between these two, which the Department of Energy could address, is the lack of transparency regarding the value of diversity and how various fuel sources actually fit into the grid both today and in the future.

In addition, low-emission technologies for coal – such as improved efficiency and carbon capture, use and storage (CCUS) – are not well understood by the general public. This results in a lack of support for these important technologies and, thus, slower development and deployment. However, CCUS on coal and gas has been shown to be a cost-effective approach to reducing emissions, especially when compared to IREs at higher penetration. For example, according to a study that compared different emission reduction options, a coal plant retrofitted with CCUS could reduce $CO_2$ emissions at a cost of $66/ton $CO_2$ compared to reducing $CO_2$ through the use of high-penetration solar with battery backup at a cost of $432/ton $CO_2$ – the most expensive of the options studied.[lxx] Just as a diverse portfolio of electricity sources provides the most reliable, cost-effective operation, diversity in emission reduction strategies also provides the most cost-effective approach – including coal plants with CCUS.

---

[4] A more expansive discussion of regulations impacting the existing U.S. coal fleet is included in Chapter 3. Policy.
[5] See Appendix 2B for a discussion of the CCR rule.



AMERICAN OVERSIGHT

Educating the general public about these low-emission options, the general value of diversity, the contribution that coal-fired generation currently provides to our energy security and quality of life and will continue to provide in our nation's energy resource portfolio is a key approach that will enable a multi-stakeholder discussion on the path forward to maintain energy stability. Education and transparency are also key to the integration of IRE into the grid.

While the progress made by IRE sources is significant, the general public does not realize the extent of the challenges of integrating large quantities of undispatchable energy into the grid, or the real costs of IRE. The recent announcements by companies like Apple and Google – that they are running their facilities off of 100% renewables[lxxi] – has exacerbated this view and is leading to a race among companies to be able to make a claim of 100% renewables by utilizing power purchase agreements (PPA).

By presenting numbers based on "average energy produced" versus "actual energy consumed", these trusted names are indirectly perpetuating the view that a grid operated on 100% IREs is readily achievable in the near-term, which it is not. The use of PPAs also does not account for the challenges in transporting electricity, in that they treat electricity produced in distant regions as if it is being consumed locally. In the end, the public is being led to believe that intermittency and non-local generation are not challenges for the grid.

The resulting public pressure on politicians to support growth of IREs and retirement of coal plants has unforeseen consequences (e.g., the deterioration and retirement of baseload and dispatchable power plants) that may not be apparent until it is too late to plan for an effective approach to system stability. Education and transparency regarding these issues could benefit energy policy and the public's support for development and implementation of a viable path forward. A current example demonstrating these risks will be elaborated in the next chapter.

## Repercussions

As noted earlier, U.S. residential and business consumers assume that the grid will operate reliably 24/7. Maintaining the grid's day-to-day stability and its ability to recover from either natural or manmade disruptions, depends in part on the availability of dispatchable resources, such as coal. The cumulative impact of the many factors addressed in this chapter suggest that coal-fired generation faces a precarious future. At issue is how an energy portfolio without adequate dispatchable power is likely to impact grid resilience.

In acknowledgement of their growing concerns with resiliency, regional transmission organizations (RTOs) and independent system operators (ISOs) are now assessing their fuel security vulnerabilities and other grid-resilient attributes that impact resource adequacy.[6] The future reliability and resilience of the nation's power grid depends on assessing these many risk factors.

[6] See Chapter 3 – Wholesale Electricity Markets.



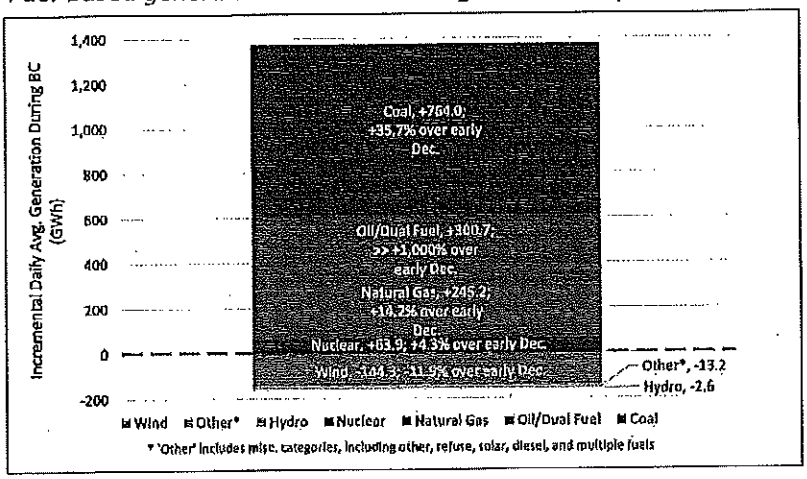
AMERICAN OVERSIGHT

## High Impact – Low Frequency Events: Lessons Learned

In March 2018, the U.S. DOE National Energy Technology Laboratory (NETL) released a study entitled "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units, Volume I: The Critical Role of Thermal Units During Extreme Weather Events."[lxxii] The study fully documents how recent weather events (e.g., the Bomb Cyclone 'BC') make it clear that grid resilience is enhanced by coal and impaired by non-dispatchable generation such as wind and solar.[lxxiii]

One of the compelling conclusions of the DOE/NETL report is that "Across the six ISOs, coal provided 55% of the incremental daily generation needed, or 764 out of 1,213 Gigawatt-hours per day (GWh/d)" and that "[d]uring the worst of the storm from January 5-6, 2018, actual U.S. electricity market experience demonstrated that without the resilience of coal- and fuel oil/dual-firing plants—its ability to add 24-hour baseload capacity—the eastern United States would have suffered severe electricity shortages, likely leading to widespread blackouts."

*Fuel-based generation resilience during the Bomb Cyclone, six ISOs*




While statistics across all six impacted ISOs are impressive, the story of the largest impacted interconnection, PJM, is worthy of specific emphasis. DOE/NETL documented that:

*"In PJM, the largest of the ISOs, coal provided the most resilient form of generation, due to available reserve capacity and on-site fuel availability, far exceeding all other sources (providing three times the incremental generation from natural gas and twelve times that from nuclear units);* ***without available capacity from partially utilized coal units, PJM would have experienced shortfalls leading to interconnect-wide blackouts."***

The surge in coal accounted for 74% of incremental energy in PJM during the BC, with fuel oil providing 22%; other sources provided little to no surge capacity.



AMERICAN OVERSIGHT

*PJM output December 2017 - January 2018, average daily GWh*

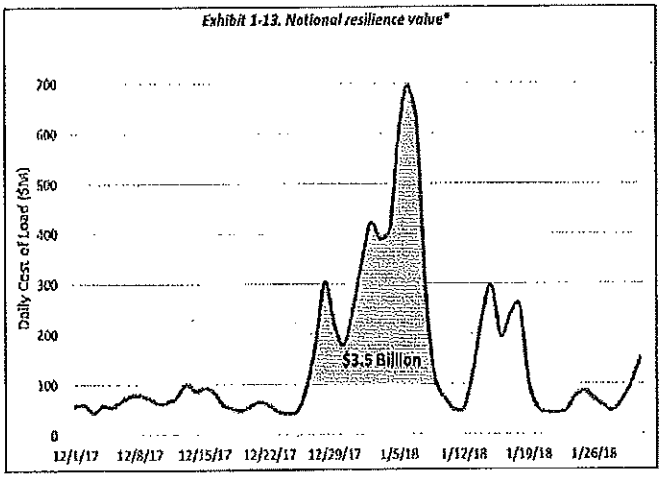
| Fuel | 12/1-12/26 | 12/27-1/9 | Delta | Percentage Change | Share of Increase |
|---|---|---|---|---|---|
| Coal | 746 | 1,113 | 367 | 49% | 74% |
| Gas | 607 | 619 | 12 | 2% | 2% |
| Renewables | 127 | 123 | -4 | -4% | -1% |
| Nuclear | 846 | 851 | 5 | 1% | 1% |
| Oil | 2 | 111 | 109 | 455% | 22% |
| Total | 2,328 | 2,817 | 496 | 21% | 100% |

The resilience benefits imparted to the PJM market were so significant, in DOE/NETL's opinion that PJM could not have survived this event without coal. Specifically, DOE/NETL concluded:

*"In the case of PJM, it can also be shown that the demand could not have been met without coal. At peak demand, January 5, 2018, natural gas prices exceeded $95/MMBtu in eastern PJM.* ***Had coal been removed, a 9–18 GW capacity shortfall would have developed, depending on assumed imports and generation outages, leading to system collapse."***

Importantly, DOE/NETL's analysis assessed the economic value of the energy resilience that coal provided during the Bomb Cyclone:

*"The value of the resilient coal- and oil-fired generation can be quantified by integrating over the term of the BC. The increase in the cost of energy services over the two-week period from December 27 to January 9 was $288M per day, equivalent to $98 per MW, compared with costs from the preceding two-week period, and $225M per day, or $73 per MW, higher than the following two-week period that featured a short return of extreme cold. This, in effect, represents a* ***value of resilience, which, during the BC, rose to $3.5 billion."***






AMERICAN OVERSIGHT

# Chapter 3: Measures to Optimize Diversity & Resiliency

## Key Findings – Chapter 3

- **Opportunities exist to streamline, re-evaluate, amend and implement regulatory and legislative measures to enable the U.S. existing coal fleet to operate more efficiently and effectively. Among the measures to be considered: reforms of NSR, PURPA, CCR and ELG regulations; tax credit support; and streamlined permitting for CCUS initiatives.**
- **Wholesale electricity market reform is needed to equitably value resilience as well reliability attributes. Various out-of-market subsidies and mandates put coal at a competitive disadvantage and fail to acknowledge coal's role in providing fuel security and other benefits supporting grid stabilization.**
- **There are many technology options available to improve the competitiveness of the existing U.S. coal fleet. These technologies can lower the cost of fuel, increase coal quality, improve plant efficiency and flexibility, reduce the costs of environmental retrofits, advance carbon capture and the beneficial use of $CO_2$ and support the deployment of new products from coal and coal byproducts.**

## Introduction

Secretary Perry requested that the NCC identify measures that could be taken to optimize the U.S. existing coal fleet to enable it to continue providing reliable, resilient and affordable power. In this chapter, actionable measures are detailed in the areas of policy, wholesale electricity markets and technology. No one area is more important; immediate, proactive engagement in each of these three areas is needed to optimize U.S. coal plants.

## Policy Considerations

Opportunities exist to streamline, re-evaluate, amend and implement regulatory and legislative measures that will enable the U.S. existing coal fleet to operate more efficiently and effectively.

New Source Review

As noted in the National Coal Council report "Leveling the Playing Field: Policy Parity for Carbon Capture and Storage Technologies" (November 2015), "the uncertainties created by NSR rules, their enforcement by the EPA, and the prohibitive cost of administering NSR compliance have created strong disincentives to the widespread deployment of efficiency improvements."[lxxiv]

Recent regulatory initiatives at EPA and legislative proposals in Congress have the potential to eliminate regulatory uncertainty and reduce litigation risks for utilities seeking to implement energy efficiency measures at their coal plants. Several other benchmarks are also provided regarding the preliminary applicability tests for NSR.[lxxv]



AMERICAN OVERSIGHT

*EPA Action*. On August 21, 2018, EPA released its Affordable Clean Energy (ACE) plan. This proposed plan aims to reduce emission by relying largely on efficiency improvements that can be made to the existing fleet of coal units. To alleviate concern around some of these efficiency improvements triggering NSR, EPA has proposed permitting changes to the NSR permitting program. For example, EPA has proposed to use an hourly emissions rate to determine if an increase in emissions has occurred as part of a change to a power plant.

*Legislative Initiatives*. To better understand and respond to concerns related to the NSR program, the U.S. House of Representatives' Energy and Commerce's Subcommittee on the Environment recently held two hearings. In February 2018, the Subcommittee conducted a hearing entitled, "New Source Review Permitting Challenges for Manufacturing and Infrastructure."[lxxvi] The background memorandum for the hearing explained that "an existing facility is required to obtain an NSR permit in order to perform efficiency upgrades or to install new pollution control technologies. However, since many existing facility owners are not willing to undergo the lengthy and uncertain NSR permitting process, they are effectively foregoing the opportunity to increase the efficiency of their facility, while also reducing emissions." The hearing detailed concerns relating to when a project should be subject to the NSR permitting process based on the computation of an "emissions increase."

To discuss possible legislative text to resolve uncertainty, the Subcommittee conducted a second hearing in May 2018, entitled, "Legislation Addressing New Source Review Permitting Reform."[lxxvii] During that hearing, a discussion draft of proposed legislation detailed possible amendments to the NSR program. The proposed statutory text is narrowly focused to further define "modification" and resolve issues related to "routine maintenance, repair, and replacement". To reduce significant delays in permitting, the proposed amendment to the definition of "modification" would not apply to projects that implement efficiency measures which reduce the amount of any air pollutant emitted by the source per unit of output. The proposed statutory text also limits the emissions increases to the maximum achievable hourly emission rate demonstrated in the last ten years.

In their testimony on the proposed legislation at the May Congressional Subcommittee hearing, Ross Eisenberg, National Association of Manufacturers (NAM) and Jeffrey Holmstead, Bracewell LLP highlighted how NSR has led to the continued retirements of coal-fired power plants. Eisenberg stated that:

> *"An inability to define what is 'routine maintenance' has resulted in NSR Notices of Violation being issued for environmentally beneficial projects like economizer replacement, steam turbine upgrades, feed water heater replacements, and similar activities. In comments to the EPA's draft Clean Power Plan, the Utility Air Regulatory Group (UARG) cited more than 400 instances in which a regulated entity took on a project to improve the energy efficiency of a power generation unit, only to be targeted by the EPA or citizen suits alleging that it had violated NSR."*



AMERICAN OVERSIGHT

Holmstead's testimony demonstrates the need for clarity around the term major modification.

> *"The question of what is a 'major modification' that triggers NSR at an existing source has been the source of much controversy and is discussed in several EPA regulations, more than a thousand pages of guidance documents and Federal Register notices, and dozens of court cases – and there is still much uncertainty about how to determine whether something is a major modification. This is important to industry because, if a company makes a 'major modification' to a facility, the cost of going through NSR, and the delays it can cause, are very substantial. In some cases, companies that have undertaken a $500,000 project that, according to EPA, is a 'major modification' that would force them to spend hundreds of millions of dollars in new control equipment. Even without the cost of new equipment, the time it takes to go through the NSR permitting process can be very long – about a year on average but, in some cases, many years. Because of the cost and delays, companies are very reluctant to do anything that might trigger NSR."*

Tax Credits

Various tax credits have been proposed or passed that could provide support for the existing U.S. coal fleet.

*Operation & Maintenance Tax Credits*. Three bills have been introduced in Congress in 2018 that would provide a temporary tax credit to cover a portion of operation or maintenance expenses for existing coal-fired power plants. These bills have been introduced by Representative Larry Bucshon (Electricity Reliability and Fuel Security Act, H.R. 5270), Senator Shelley Moore Capito (Electricity Reliability and Fuel Security Act, S. 2677) and Senator Joe Manchin (Energy Reliability Act of 2018, S. 2681).[lxxviii] Offsetting a small portion of O&M expenses for the existing coal fleet is estimated to prevent the retirement of as much as 24,000 MW of coal-fired generation.

All three bills amend the Internal Revenue Code to provide a tax credit to offset a portion of the O&M expenses for existing coal-fired power plants. The purchase of coal for fuel does not qualify as an O&M expense under any of the bills. The tax credit is equal to either 30% of the plant's annual O&M expenses or $13 per kilowatt of installed (nameplate) generating capacity, whichever is less. As proposed, the tax credit is available for tax years beginning 2018 and ending before 2023. The tax credit is transferrable under all three bills, although the two Senate bills include provisions – with slightly different language – that allow the tax credits to be transferred by any taxpayer, including rural cooperatives and municipal utilities, to certain eligible partners who can then claim the credits. The House bill limits transferability to rural cooperatives and municipal utilities but not all taxpayers.



AMERICAN OVERSIGHT

*45Q Implementation & Synergistic Policies to Enhance Implementation*. On February 9, 2018, Congress passed and the President signed into law the 2018 Bipartisan Budget Act. Section 41119 amends the existing federal tax credit for $CO_2$ sequestration under §45Q (45Q) of the Internal Revenue Code (26 U.S.C. §45Q).[lxxix] Section 41119 contains the text of S. 1535, the "Furthering Carbon Capture, Utilization, Technology, Underground Storage, and Reduced Emissions Act of 2017" ("FUTURE Act").

As detailed by the Carbon Capture Coalition,[lxxx] key provisions of the FUTURE Act modify the existing 45Q tax credit in the following ways:

- Increases the credit value incrementally over 10 years from $10 to $35 per metric ton of $CO_2$ stored geologically through enhanced oil recovery (EOR) and from $20 to $50 per metric ton for saline and other forms of geologic storage.
- Provides $35 per metric ton for $CO_2$ captured and put to beneficial uses beyond EOR that reduce lifecycle emissions.
- Authorizes the program for carbon capture projects that commence construction within six years from enactment; projects meeting that timeframe can claim the credit for 12 years from being placed in service.
- Reduces the minimum eligibility threshold for qualified facilities from 500,000 metric tons of $CO_2$ captured annually to 100,000 metric tons for industrial facilities and 25,000 metric tons for $CO_2$ captured and put to beneficial uses other than EOR. Retains the 500,000 metric ton eligibility threshold for electric generating units.
- Awards the credit to the owner of the carbon capture equipment and allows transfer of the credit to other entities responsible for managing the $CO_2$ to provide greater flexibility for companies with different business models to utilize the tax credit effectively, including cooperatives and municipal utilities.

Tax data are non-public, making any assessment of 45Q's utilization by the existing coal fleet subject to substantial uncertainties. To date, only one coal-fired power plant in the U.S. has retrofitted $CO_2$ capture technology – the PetraNova project in Texas. Regardless of 45Q, retrofitting $CO_2$ capture technology to an existing coal plant involves resolution of a remaining host of CCUS-related technical, economic and policy issues. In 2012, the IEA concluded that only approximately 29% of the then existing installed global coal-fired fleet could potentially be retrofitted with CCUS for a variety of reasons, including plant age.[lxxxi] For these and related reasons, some experts believe that in the absence of other incentives the amended 45Q is more likely to be used by industrial facilities with relatively pure $CO_2$ sources, such as ethanol plants, refineries and ammonia producers.[lxxxii]



AMERICAN OVERSIGHT

A recent analysis suggests that the amended 45Q could spur the construction of new coal plants by enabling them to bid "negative" into wholesale markets, based on a variety of assumptions.[lxxxiii] In the meantime, a number of legislative proposals currently under consideration would complement and may further incentivize utilization of the 45Q tax credit for existing coal plants. The Carbon Capture Coalition notes that "While recent congressional extension and reform of the 45Q tax credit provides the most important federal incentive for encouraging private investment in carbon capture deployment, additional federal incentives would complement 45Q and enable more capture projects to become commercially feasible, thus accelerating deployment across multiple industries."

*Business Structures to Support 45Q.* Federal legislation that would support 45Q use include initiatives to make carbon capture projects eligible for tax-exempt private activity bonds (PABs) and master limited partnerships (MLPs). PABs would allow developers of carbon capture projects access to tax-exempt debt to help finance their projects, thus lowering their capital costs. The Carbon Capture Improvement Act of 2017 (S. 843)[lxxxiv] makes carbon capture projects eligible for PABs and has been introduced in the U.S. Senate by Senators Rob Portman (R-OH) and Michael Bennet (D-CO), and in the U.S. House of Representatives by Congressmen Carlos Curbelo (R-FL) and Marc Veasey (D-TX).

The MLP structure combines the tax benefits of a partnership with a corporation's ability to raise capital in public markets. Thus, allowing carbon capture projects to be MLPs would reduce the cost of equity and provide access to capital on more favorable terms. The MLP Parity Act of 2017 (S.2005)[lxxxv] would provide this eligibility and has been introduced in the U.S. Senate by Senators Chris Coons (D-DE) and Jerry Moran (R-KS) and in the House by Congressmen Ted Poe (R-TX) and Mike Thompson (D-CA).

In its Policy Parity report, NCC supported the application of PABs and MLPs to advance the deployment of CCUS.[lxxxvi]

*48A Investment Tax Credit.* In 2005, Congress established an investment tax credit or "Credit for Investment in Clean Coal Facilities" in the Energy Tax Incentives Act (ETIA) of 2005. ETIA authorized $1.3 billion in tax credits to support advanced coal-based generation technology that meets specifics $SO_2$, $NO_x$, PM and mercury emission limits and that is:

1) An Integrated Gasification Combined Cycle (IGCC); or
2) A new unit meeting design heat rate requirements based on coal type of about 40%; or
3) An existing unit meeting a design heat rate requirement based on coal type, minimum of which is 35%, plus a 4 to 7 percentage point improvement in efficiency (depending on coal type) with the addition of new equipment compared to previous operations.



AMERICAN OVERSIGHT

To be eligible, an advanced coal-based generation technology must meet both the emissions levels and efficiency requirements, unless it is an IGCC which is exempt from the efficiency requirements. In 2008, Congress provided an additional $1.25 billion in tax credits through the Energy Improvement and Extension Act (EIEA) of 2008, or the "Expansion and Modification of Advanced Coal Project Investment Credit," which increased the value of the tax credit to 30% of the eligible investment and imposed a new requirement to capture and store at least 65% of the $CO_2$ in order to be eligible for the tax credits. However, the heat rate requirements from the 2005 statute were not adjusted when the CCUS requirement was added to the 2008 bill. Adding CCUS equipment to a new or existing unit results in an efficiency loss to the generating unit, as auxiliary power (as steam and electricity) is needed from the unit to power the $CO_2$ capture system.

It is important to note that problems with the requirements of the 2008 statute are not limited to specific units. The efficiency requirements would make most $CO_2$ capture retrofits to an existing unit ineligible. In its current form, the tax credit does not incentivize CCUS on new or existing coal plants in the near term, which is a lost opportunity and, if changed to accomplish Congress' intent of reducing emissions, could support CCUS projects on the existing fleet of coal-fired power plants. Relative to other potential policy levers discussed in this section, 48A may be more easily achieved as the funding has been appropriated and the program is already in existence.

Land Use Policies Related to Carbon Storage and Utilization

$CO_2$ storage resources in the U.S. are large (see Figure 16). The National Energy Technology Laboratory (NETL) estimates that saline formations could store from 2.4 to 21.6 trillion metric tons of $CO_2$ ($MTCO_2$). In oil and gas reservoirs, storage potential ranges from 185 to 230 billion $MTCO_2$.[lxxxvii] Unminable coal areas could provide an additional 50 to 110 billion $MTCO_2$. Annual emissions from of the current coal-fired power plant fleet were about 1241 $MTCO_2$ in 2016.[lxxxviii]

In West Texas and the Rocky Mountains, $CO_2$ flooding for EOR currently produces about 200,000 barrels (bbl) of oil per day.[lxxxix] In a Senate Environmental and Public Works Committee hearing last year it was noted that carbon capture and storage (CCUS) faces bigger financial obstacles than technical ones if it is to spread beyond EOR. Committee Chair John A. Barrasso (R-Wyo.) indicated that CCUS and EOR should play an important role in a true "all of the above" energy strategy. "We have a win-win situation with $CO_2$-enabled oil recovery. We have the potential to make it economical to extract more than 60 billion bbl of oil in this country."[xc]

Several plants in the existing coal fleet are either located on federal and/or tribal lands, or have reasonably proximate access to the same. At least one of DOE's CarbonSAFE[xci] projects is located in Wyoming, a state with significant federal lands as well as tribal lands. As a result, the facilities could potentially benefit if the relevant authorities enacted $CO_2$ storage laws and regulations for these resources.[xcii]



AMERICAN OVERSIGHT

A 2009 DOE study concluded that the storage resource beneath Federal lands ranges between 126 and 375 billion metric tons, with the bulk of that west of the Mississippi River – specifically Montana, Wyoming and the Dakotas.[xciii] Others benefits of storing $CO_2$ under federal lands include only having to deal with one landowner. This approach is no panacea, though, as utilization of federal lands comes with a host of regulatory restrictions, including but not limited to application of the National Environmental Policy Act (NEPA).

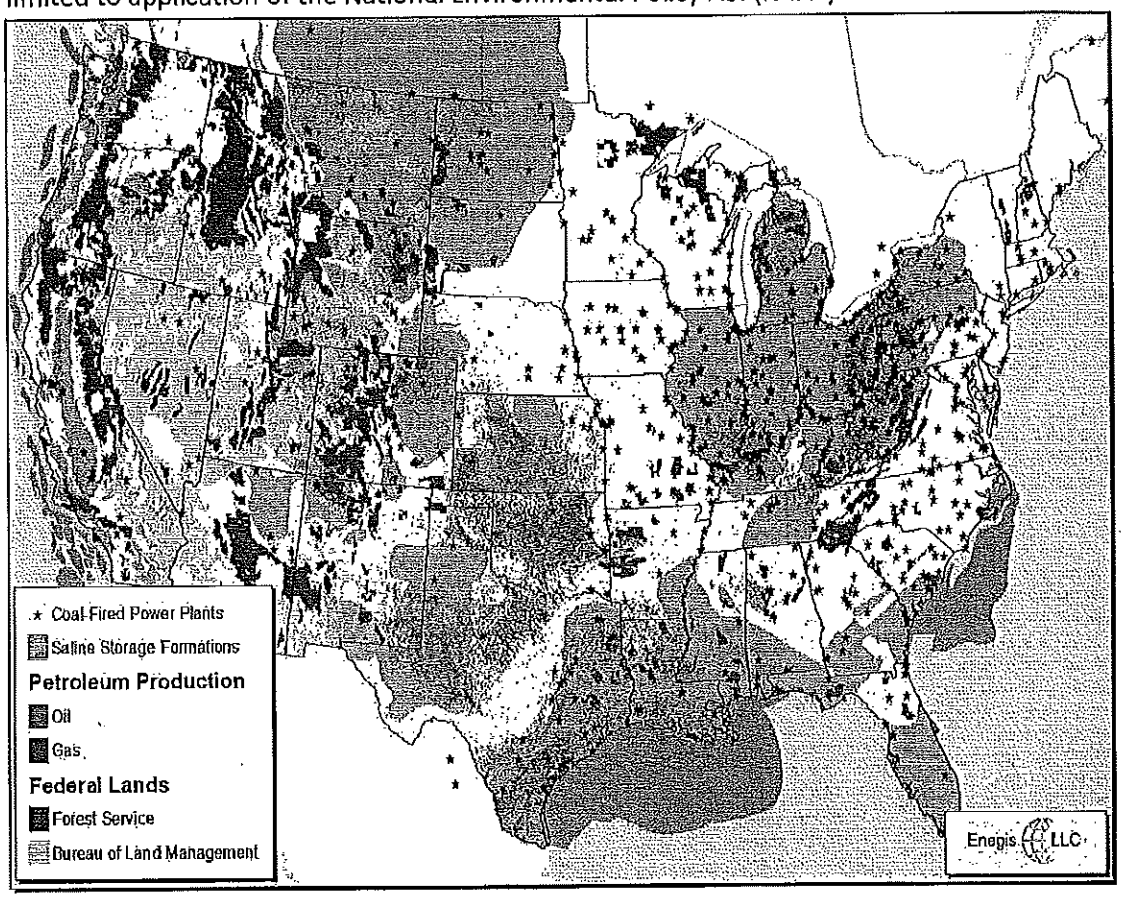



*Figure 16. Location of Potential CO2 Storage, Oil ond Gas Production, and Coal-Fired Power Plants*

Congress has never enacted a law that provides a regulatory framework for CCUS on public lands, nor has the U.S. Department of the Interior (DOI) published relevant regulations or guidance. There is no leasing program or established guidance, for example, on obtaining $CO_2$ injection and storage rights into federal pore space. The situation is better for pipelines, as the Bureau of Land Management (BLM) has authority to issue rights of way (ROW) for $CO_2$ pipelines pursuant to the Mineral Leasing Act (MLA); pipeline developers receiving a ROW pursuant to the MLA are required to operate the pipeline as a common carrier. The United States Geological Survey (USGS) also has developed a methodology to assess storage capacity in oil and gas reservoirs and saline formations.[xciv]



AMERICAN OVERSIGHT

Public Utility Regulatory Policies Act of 1978 Reform

The increasing pressure to reform the 1978 Public Utility Regulatory Policies Act (PURPA) is in response to changes in the 21st century electricity landscape compared with the energy crises that defined the 1970s. The overarching goal of PURPA was to promote energy conservation and the production of alternative sources of energy, including renewable energy. Efforts to reform or modernize PURPA focus on both regulatory reform for which FERC has authority, and more substantive reform that would have to be authorized by Congress. Rep. Tim Walberg (MI) has filed a bill (H.R. 4476), PURPA Modernization Act of 2017, and Congressional testimony took place in January 2018, before the U.S. House of Representatives Subcommittee on Energy.[xcv] Senator Barrasso (WY) has also introduced a PURPA reform bill (S. 2776).[xcvi]

To help achieve the alternative and renewable energy goals, PURPA established a new class of generating facilities – qualifying facilities (QFs). QFs were grouped into two categories – small power production facilities and cogeneration facilities. Small power production facilities are those hydro, wind, solar, biomass, waste or geothermal facilities producing 80 MW or less. A cogeneration facility produces electricity and another form of thermal energy such as heat or steam. PURPA required electric utilities to purchase power produced by QFs, a requirement referred to as the mandatory purchase obligation. Utilities were required to purchase this power at the utility's avoided cost – the cost the utility would incur if it were to generate the power itself or purchase from another source. States have discretion in interpreting and determining avoided cost, and thus there is not a consistent rate across the country.

When PURPA was enacted, wholesale electricity markets did not exist, oil made up a large share of the electricity generation portfolio, electricity demand was growing and renewable energy technologies were nascent. The 1970s energy scenario looks nothing like today's electricity landscape. Competitive power markets have emerged and most areas of the country no longer have capacity constraints as a result of abundant natural gas resources, declining costs of renewable technologies and flat or declining customer demand for electricity. In addition, many states' policies mandating RPS have had a significant impact on the growth in renewable generation.

The key problem for existing electric generators is PURPA's mandatory purchase obligation of QF resources using long-term contracts at the utility's forecasted avoided costs. This leads to new unneeded resources coming on line, potentially resulting in prioritizing non-dispatchable resources at the expense of existing fossil resources. The National Association of Regulatory Utility Commissioners (NARUC) has proposed that FERC adopt regulations that base power purchased from a QF on competitive solicitations or market clearing prices, rather than use the current administratively determined avoided cost.[xcvii] FERC has already indicated its willingness to look into regulatory changes — including reform of the so-called "one-mile" rule that has inadvertently allowed large renewable developers to disaggregate their projects into several QFs to avail themselves of the mandatory purchase obligation.



AMERICAN OVERSIGHT

PURPA reform would more realistically reflect today's electricity landscape and ensure utilities are not forced to purchase power they do not need.

Coal Combustion Residuals

In 2015, EPA finalized new rules for coal combustion residuals (CCRs) under the Resource Conservation and Recovery Act (RCRA). The rules set standards for existing CCR impoundments and require closure of ash ponds found to be contaminating groundwater. Ash ponds or landfills must be closed if they lack structural integrity or are in sensitive locations. The CCR rule imposes high costs on certain disposal sites. The rule may drive units to retire as the compliance costs become prohibitive, adding to the cost of generation, or their disposal facility is forced to close, and the alternatives are too expensive.

While EPA considered the direct costs to utilities associated with the 2015 CCR regulations, the indirect impacts to the U.S. construction materials and infrastructure markets are having inflationary impacts on state and federal highway budgets, since cement substitution with fly ash pozzolans is reduced due to lack of availability or substantial price increases associated with added transportation costs. In the case of beneficial use of fly ash as a substitute for manufactured cement, the $CO_2$ reductions achieved are also a factor to be considered in rulemaking procedures. Since fly ash use in concrete usually offsets cement imports, the value of CCRs as a construction material helps meet the objectives of RCRA in resource conservation and recovery to assist in the U.S. balance of payments.

In March 2018, EPA proposed Phase 1-Part 1 revisions to the 2015 CCR rule, estimating that the proposed changes would save the regulated community between $31 million and $100 million per year. EPA finalized the first set of revisions in July 2018, noting that these will provide utilities and states more flexibility in how CCR is managed, and estimated that these provisions would save $28 to $31 million a year in regulatory costs. This revision would:

- Extend the life of some existing ash ponds from April 2019 until October 2020;
- Empower states to suspend groundwater monitoring in certain cases;
- Allow state officials to certify whether utilities' facilities meet adequate standards.

In addition, EPA plans to propose other Phase 2 reconsideration changes to the 2015 coal ash rule later in 2018 for finalization in 2019. A detailed discussion of the rule's impacts on coal plants and associated costs are presented in Appendix 2C.



AMERICAN OVERSIGHT

Effluent Limitation Guidelines

The Clean Water Act directs EPA to establish effluent limitations guidelines and standards (ELGs) to control discharges of pollutants to surface waters. These standards are set based on the performance of available, demonstrated technologies, although facilities are not required to use those technologies and may instead use alternative approaches to comply. ELGs represent a minimum expected level of control, implemented through an individual plant's National Pollutant Discharge Elimination System (NPDES) permits for direct dischargers, establishing pretreatment standards that must be met before wastewater can be discharged to publicly owned treatment works (POTWs). The ELGs promulgated by EPA cover discharges of certain water streams produced within a coal-fired power plant, notably flue-gas desulfurization (FGD) wastewater, ash transport water and CCR leachate. The new ELGs are implemented by incorporation into NPDES permits as these permits are renewed and through local pretreatment programs.

For FGD wastewater, numerical limits were initially set for discharge of As, Hg, Se and $NO_2$+$NO_3$. For ash transport water (including both fly ash and bottom ash), the ELGs mandate zero discharge. In September 2017, EPA suspended limits and pretreatment standards for bottom ash transport water and FGD waste water for two years, pending a review. EPA has indicated that they will propose an updated rule by December 2018, with a final rule by December 2019. The earliest compliance date would be in November 2020.

Plants are already faced with closing ash ponds as part of the CCR rule. The ELGs add the possibility of adding a wastewater treatment module to the FGD discharge stream, if the plant plans to continue discharging this stream. The numerical limits on FGD wastewater discharge are critical in the determination of the potential costs of wastewater treatment. In some cases, for example, very low levels of selenium in wastewater discharge can only be attained by costly secondary treatment processes such as biological reactors.

Water-Energy Nexus

The term "water-energy nexus" refers broadly to the necessary role that water plays in the extraction of energy on the one hand and the role that electricity plays in the extraction, treatment and distribution of water on the other. When water is "used" it can be reused quickly or after some form of treatment; when water is "consumed" it is not immediately available for another use. For example, water use includes a power plant withdrawing water from a supply, using it as cooling water in the plant's operation, and then reintroducing it back into a water supply. Water "consumed" is the water that is evaporated in the process and not directly reintroduced into the water supply.



AMERICAN OVERSIGHT

Of the two most common cooling options for thermoelectric power plants, once-through and tower cooling, the latter typically "uses" 5% of the water used by the former, but consumes approximately 50% more total water.[xcviii] In line with these consumption rates, one regulator's default water consumption rate for coal- and natural gas-fired generation using once-through cooling systems is 0.35 gallon/kilowatt-hour (g/kWh). Comparatively, the cooling rates for coal-fired generation using tower cooling is 0.60 g/kWh and for natural gas-fired simple-cycle generation is 0.70 g/kWh.[xcix]

A common misconception associated with the water-energy nexus is that shifting fuel sources or reducing electric demand will have a dramatic impact on water consumption. The data do not support this conclusion when set in context of other aspects of the water use and consumption picture. For example, the average American household requires 29 kW of power per day.[c] To produce this much power, a typical once-through cooled steam electric power plant will consume 9½ gallons of water.[ci] This is far less than the average household's daily water use for showers (47 gallons), toilet flushing (75 gallons) or outdoor watering (120 gallons).[cii]

Furthermore, electricity generation has been able to historically absorb large population increases without increasing water consumption. This is due mainly to new technologies and increased efficiencies that are able to reduce or maintain water use/consumption, while meeting increasing demand. Nationwide, since 1975, water withdrawals for thermos-electric power have essentially flat lined while population has increased by just shy of 100 million.[ciii] Consumption rates have also significantly dropped from almost 50,000 gallons/MWh in the 1950s, to a rate of close to 15,000 gallons/MWh presently.[civ]

As the U.S. continues to grow and its demand for water and energy grow along with it, knowledge and awareness about the water-energy nexus are likely to grow as well. This evolution has already led to increased awareness of the water-energy nexus and has proven to be a great enhancement of water planning processes around the nation. On the electric generation front, a better appreciation of the efficiencies already achieved in the electric generation sector and the relatively minor role that electricity production plays in the U.S.' overall water consumption will hopefully keep the water-energy nexus from being further distorted.



AMERICAN OVERSIGHT

## Wholesale Electricity Markets

According to FERC, "Traditional wholesale electricity markets exist primarily in the Southeast, Southwest and Northwest ... Utilities in these markets are frequently vertically integrated ... While the industry had historically traded electricity through bilateral transactions and power pool agreements, FERC Order No. 888 promoted the concept of independent system operators (ISOs) ... Along with facilitating open-access to transmission, ISOs operate the transmission system independently of, and foster competition for electricity generation among, wholesale market participants. In FERC Order No. 2000, the Commission encouraged utilities to join regional transmission organizations (RTOs) which, like an ISO, would operate the transmission systems and develop procedures to manage transmission equitably. Each of the ISOs and RTOs have energy and ancillary services markets in which buyers and sellers could bid for or offer generation. The ISOs and RTOs use bid-based markets to determine economic dispatch ... Two-thirds of the nation's electricity load is served in RTO regions."[cv]

The U.S. has seven ISO/RTOs: ISO New England (ISO-NE), New York ISO (NYISO), PJM Interconnection (PJM), Midcontinent Independent System Operator (MISO), Southwest Power Pool (SPP), the Electric Reliability Council of Texas (ERCOT), and the California ISO (CAISO) (see Figure 17).

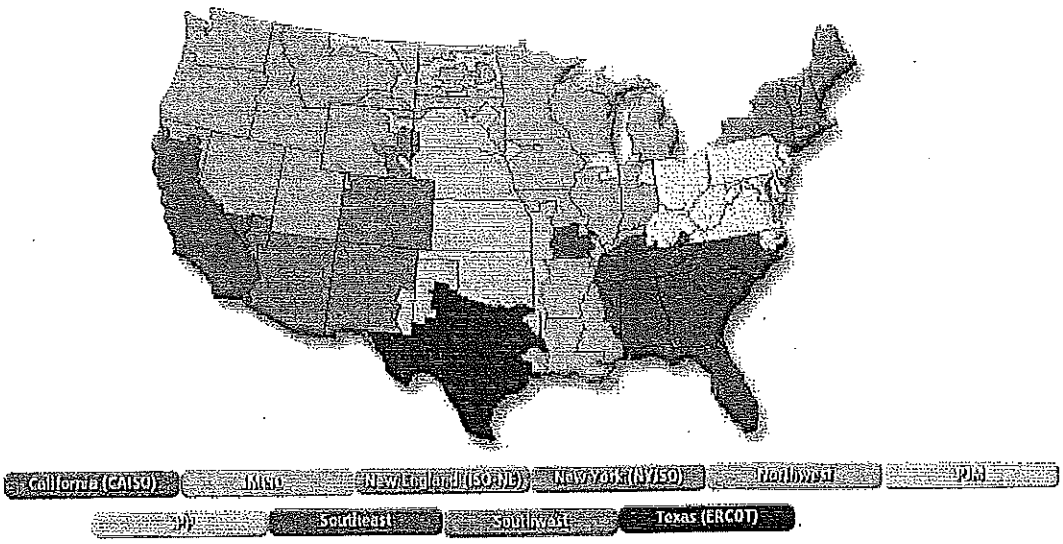



*Figure 17. U.S. ISOs and RTOs*[cvi]

These ISO/RTOs were designed primarily to maintain competitive markets, low electricity prices and transmission reliability. They were not designed to ensure resilience, fuel diversity, or fuel security.



AMERICAN OVERSIGHT

ISO/RTOs have a major effect on the nation's coal fleet because some 164,000 megawatts (MW) of coal-fired generation — almost two-thirds of the fleet — are located in ISO/RTO footprints. Almost all of this coal-fired capacity is located in four regions: MISO's footprint includes 63,000 MW; PJM 60,000 MW; SPP 26,000 MW; and ERCOT 15,000 MW. (The coal fleet in these four wholesale markets consumed some 460 million tons of coal in 2017, almost two-thirds of U.S. coal demand.) As a consequence, ISO/RTO market policies affect the competitiveness and economic viability of the coal fleet.

For a number of reasons, including market policies, 45,000 MW of coal-fired generating capacity in ISO/RTO regions have retired.[cvii] An additional 17,000 MW in these regions are slated to retire over the period 2018 through 2020, of which 12,000 MW have been attributed to market conditions.[cviii] The regions with the most retirements through 2020 are PJM (32,000 MW); MISO (14,400 MW); ERCOT (5,700 MW); and SPP (4,400 MW).

Compensation in Wholesale Markets

Generally, ISO/RTOs provide compensation to electricity generators for capacity, energy, and essential reliability services (frequency regulation, voltage support and reactive power). However, ERCOT and SPP do not have capacity markets.

The existing coal fleet is competing with natural gas in many of these markets. In addition, various out-of-market subsidies and mandates can put dispatchable sources, such as coal, at a competitive disadvantage. For example, wind and solar will have received $36.5 billion in tax credits alone over the five-year period 2016–2020, according to the Joint Committee on Taxation.[cix,7] Wind and solar benefit from a Federal PTC. In the case of wind, the PTC allows wind energy sources to bid into markets at a zero or negative cost that suppresses prices for other electricity resources and increases the need for load following and ramping from coal units. Without the PTC, coal units might be dispatched more frequently, potentially reducing the amount of retirements.

The economic value of the PTC for renewable energy projects is significant as is evident in a recent decision regarding what was to be the largest wind farm in the U.S. In late July 2018, American Electric Power (AEP) cancelled its $4.5 billion Wind Catcher project when the Texas Public Utility Commission denied its approval saying it would not benefit Texas ratepayers. According to news reports,[cx] the project required timely approvals from jurisdictions in Arkansas, Louisiana, Oklahoma and Texas in order to complete the project by 2020 and qualify for 100% of the Federal PTC.

In addition to tax benefits such as the PTC, 29 states have renewable portfolio standards requiring that specific percentages of electricity sales come from renewables as detailed in Chapter 1. These percentages range from 10% in Wisconsin to 100% in Hawaii.

---

[7] For a more expansive Analysis of Federal Expenditures for Energy Development, 1950-2016, see http://misi-net.com/publications/EnergyIncentives-0517.pdf



AMERICAN OVERSIGHT

EXT-18-2615-G-000125

There are other out-of-market subsidies that disadvantage the coal fleet. For example, within PJM's 13-state footprint, 4 states — Northern Illinois, Pennsylvania, New Jersey and Ohio — have adopted or considered zero-emissions credit policies to subsidize existing nuclear plants. Subsidies allow renewable and nuclear generators to enter capacity auctions at prices below their operating costs, pushing down overall market prices and sometimes leading to power plant to retirements.

FERC Action

There are many actions that could be undertaken by the Federal Energy Regulatory Commission (FERC) to ensure that the services provided by the U.S. fleet of coal-fired power plants are appropriately valued. FERC has evaluated price formation issues in competitive markets for nearly a decade. In 2014, FERC initiated a proceeding (Docket No. AD14-14-000) to examine price formation in organized markets to ensure that pricing rules established in regional transmission organization (RTO) and independent system operator (ISO) markets would satisfy four objectives: "(1) maximize market surplus for consumers and suppliers; (2) provide correct incentives for market participants to follow commitment and dispatch instructions, make efficient investments in facilities and equipment, and maintain reliability; (3) provide transparency so that market participants understand how prices reflect the actual marginal cost of serving load and the operational constraints of reliably operating the system; and (4) ensure that all suppliers have an opportunity to recover their costs." Subsequently, FERC directed each RTO/ISO to publicly provide a report regarding five price formation issues: (1) pricing of fast-start resources; (2) commitments to manage multiple contingencies; (3) look-ahead modeling; (4) uplift allocation; and (5) transparency.[cxi]

Since that order, FERC has continued to evaluate these issues in a number of different proceedings, most notably in Order No. 825, FERC revised "its regulations to address certain practices that fail to compensate resources at prices that reflect the value of the service resources provide to the system, thereby distorting price signals, and in certain instances, creating a disincentive for resources to respond to dispatch signals."[cxii] Despite FERC's action to date, price formation and market issues continue. As FERC further examines these issues, some of the proposed policy options include:

*Price Formation*. Among the policy options proposed by various organizations, FERC could examine and refine price formation in the RTO's through rulemaking or ordering tariff changes by the respective RTOs/ISOs. Potential considerations include:

- Allowing fuel-secure resources to set the locational marginal price when running (even if operating at their economic minimum operating levels).
- Eliminating negative pricing.



AMERICAN OVERSIGHT

- Minimum Offer Price Rule (MOPR): Establishing a price floor for fuel-secure resources in the energy or capacity markets. A price floor would guarantee that these resources are paid a rate that is adequate to cover their costs. Specific mechanisms could be developed in the individual markets so that they would be responsive to local needs and integrated with other policy goals.
- Requiring the value of tax and other subsidies to be imputed into the market bids of subsidized resources, thereby ensuring that subsidized entities are bidding at their actual unsubsidized cost.

*Essential Reliability Services*. FERC could ensure there are proper standards (building off of current NERC reliability standards and guidelines) and just and reasonable compensation for reactive power, frequency response and other ERS that support grid operations. Indeed, FERC has recently touched on this issue in Order No. 842, where it required "**new** large and small generating facilities, including both synchronous and non-synchronous ... to install, maintain, and operate equipment capable of providing primary frequency response as a condition of interconnection."[cxiii] In addition, FERC should consider whether there are additional ERS that will be needed to support the grid with increased IRE penetration.

*Capacity Market Reforms*. Current capacity markets were not structured to value externalities such as resiliency or environmental attributes. As a result of recent regulatory and market trends, some traditional capacity resources are not clearing the market. There are several potential mechanisms that FERC could consider to rectify this:

- Fuel Security Value Curve or reforms to the clearing of resources in capacity auctions based on onsite fuel characteristics or technology type.
- Consider a separate market construct that would incentivize capacity resources that have onsite fuel or dual-fuel supplies.

*Forward Resiliency Market*. Regions could conduct an auction-type program to ensure that each market has sufficient onsite fuel to supply the MWh of production needed over a specific period. In another vein, the Commission could implement new products in the markets, such as a product that compensates units for ramping or flexibility, or a "stand-by" product that would compensate resources for staying online.

*Demand Response Compensation Reform*. FERC could consider how overcompensating demand response resources may distort the generation mix and act appropriately.



AMERICAN OVERSIGHT

Specific Market Reforms

There have been increasingly serious discussions in energy policy circles about resilience because of the continuing retirement of large amounts of coal-fired and nuclear generation, both of which provide fuel security and essential reliability services. While coal-fired generation receives the same compensation as other generators for ERS, coal-fired units are not compensated for the increased operating costs associated with being dispatched to provide load following and ramping services.

Fuel security is important to resilience because it enables the grid to absorb and recover quickly from manmade or natural disturbances that could have potentially disastrous consequences. Markets compensate reliability attributes, but not resilience attributes, such as fuel security. Further, markets do not incent investments in fuel-secure infrastructure.

The coal fleet maintains a large coal stockpile at each power plant. In 2017, the average coal-fired power plant had an on-site coal supply ranging from 71 days to 104 days of coal burn.[cxiv] Coal stockpiles provide resilience against high impact, low frequency disruptions because on-site fuel supplies minimize the potential for fuel supply disruptions. By contrast, at least 40% of the nation's electricity resources are not fuel secure.[8]

The U.S. Department of Energy has highlighted concerns about coal and nuclear retirements in its "Staff Report to the Secretary on Electricity Markets and Reliability" and in a proposed "Grid Reliability and Resilience Pricing Rule" to compensate electricity sources that maintain a 90-day supply of fuel on site and provide essential reliability services.[cxv]

FERC terminated the proposed rule and initiated a new proceeding to define resilience and to evaluate the resilience of the bulk power system in wholesale electricity markets.[cxvi] FERC has proposed to define resilience as "the ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event." It is unclear what steps FERC might take as a result of this proceeding, and the timing of any such steps is unknown. In the meantime, coal retirements continue.

PJM. PJM (see Figure 18) is a useful case study of the need for market reforms because its footprint includes a relatively large coal fleet, it has substantial amounts of at-risk coal and nuclear generation, and it has a diverse fuel mix that relies mostly on nuclear, coal and natural gas.

[8] NERC indicates that only 27% of natural-gas-fired generating capacity built over the past two decades has dual-fuel capability. (Source: NERC "Special Reliability Assessment: Potential Bulk Power System Impacts Due to Severe Disruptions on the Natural Gas System," November 2017.) This means that roughly 275,000 MW of gas-fired generating capacity lack dual-fuel capability. In addition, renewable generating capacity totaled some 204,000 MW last year. Thus, approximately 409,000 MW of electric generating capacity lack fuel security. U.S. electric generating capacity last year totaled slightly more than 1 million MW. (Source: EIA AEO 2018)



AMERICAN OVERSIGHT

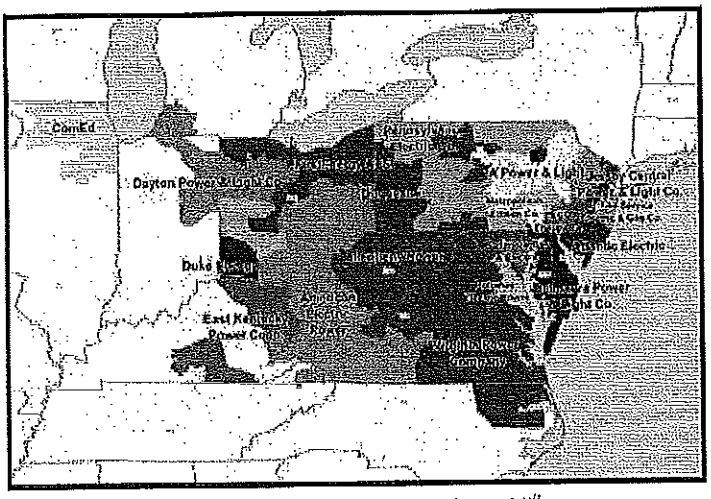



*Figure 18. PJM ISO Territory*[cxvii]

PJM had proposed tariff revisions to address price suppression caused by out-of-market payments. As PJM explained its situation:[cxviii]

*"Over the last few years, the integrity and effectiveness of the capacity market administered by PJM have become untenably threatened by out-of-market payments provided or required by certain states for the purpose of supporting the entry or continued operation of preferred generation resources that may not otherwise be able to succeed in a competitive wholesole capacity market. The amount and type of generation resources receiving such out-of-market support has increased substantially. What started as limited support primarily for relatively small renewable resources has evolved into support for thousands of megawatts (MWs) of resources ranging from small solar and wind facilities to large nucleor plants. As existing state programs providing out-of-market payments continue to grow, more states in the PJM region are considering providing more support to even more resources, based on an ever-widening scope of justifications ... These subsidies enable subsidized resources to have a suppressive effect on the price of capacity procured by PJM through its capacity market ... Out-of-market payments, whether made or directed by a state, allow the supported resources to reduce the price of their offers into capacity auctions below the price at which they otherwise would offer absent the payments, causing lower auction clearing prices. As the auction price is suppressed in this market, more generation resources lose needed revenues, increasing pressure on states to provide out-of-market support to yet more generation resources that states prefer, for policy reasons, to enter the market or remain in operation. With each such subsidy, the market becomes less grounded in fundamental principles of supply and demand."*

However, FERC rejected the PJM proposal[cxix] and, instead, is considering an alternative approach that could lead to market reforms.



AMERICAN OVERSIGHT
EXT-18-2615-G-000129

*Valuing Fuel Security*

Both PJM and ISO-NE are conducting fuel security studies because of the importance of fuel security to resilience. Fuel security enables the grid to absorb and recover quickly from manmade or natural disturbances that could have disastrous consequences. However, the attribute of fuel security is not valued in wholesale markets at the present time.

ISO-NE. ISO-NE defines fuel security as "... the ability of the system's supply portfolio, given its fuel supply dependencies, to continue serving electricity demand through credible disturbance events ... that could lead to disruptions in fuel delivery systems ... which could impact the availability of generation over extended periods of time." ISO-NE has an ongoing analysis of fuel security which it considers to be the region's most significant resilience challenge. ISO-NE is concerned that power plants in New England might not be able to obtain fuel, particularly in winter, because of coal, oil and nuclear retirements, constrained fuel infrastructure, and difficulty in permitting and operating dual-fuel generating capability.[cxx] So far, the ISO has concluded the region is vulnerable to the season-long outage of any of several major energy facilities.

PJM. According to PJM, "Fuel security focuses on the vulnerability of fuel supply and delivery to generators and the risks inherent in increased dependence on a single fuel-delivery system." PJM has initiated a three-phase effort to analyze and value fuel security.[cxxi] The PJM analysis will evaluate a dozen combinations of coal and nuclear retirements, as well as disruptions to fuel delivery systems. PJM plans to use the results to establish fuel-security criteria and then use markets to "allow all resources to meet those criteria." PJM expects to complete its fuel security initiative by May 2019.

The American Coalition for Clean Coal Electricity (ACCCE) commissioned a similar study by Quanta to illustrate the potential consequences of ignoring risks from accelerated coal retirements and fuel insecurity for the PJM grid.[cxxii] Quanta's modeling showed that when more coal-fired generation retired prematurely and natural gas-fired generation experienced supply disruptions, the PJM grid could not meet reliability criteria for transmission security, resource adequacy, or both. Figure 19 below from the Quanta report shows that scenarios based on coal retirements and gas outages exceed resource adequacy criteria.



AMERICAN OVERSIGHT

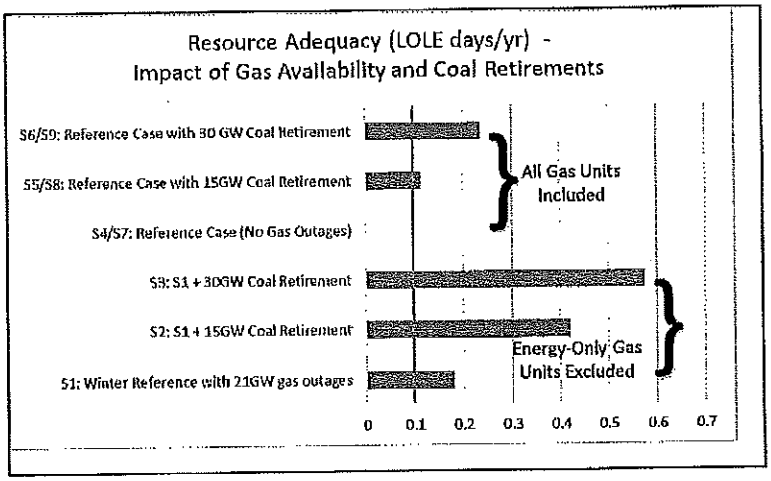



*Figure 19. Resource Adequacy: Impact of Gas Availability & Coal Retirements*[cxxiii]

Among other things, the Quanta study showed that PJM will lose its resilience to natural gas outages if coal retirements continue.



AMERICAN OVERSIGHT

## The Role of Technology in Optimizing the U.S. Coal Fleet

The U.S. boasts a coal-fueled fleet of power plants that have historically provided a source of reliable, affordable power. Maintaining this fleet is essential to ensure that the country can continue to provide reliable, resilient, affordable power through a diverse electric mix. To improve the competitiveness of the existing U.S. fleet there are many technology options available, including lowering the cost of fuel through advancing mining practices, increasing coal quality, improving plant efficiency and flexibility, reducing the costs of environmental retrofits, advancing carbon capture approaches that generate saleable $CO_2$ and identifying other options for additional revenue through new products from coal or coal byproducts.

### Reducing Fuel Costs

For a typical U.S. coal plant, delivered fuel cost accounts for the majority (about two-thirds) of the plant's O&M cost and an even greater portion (greater than 80%) of its variable cost, which is used to determine whether it dispatches ahead of or behind other sources of generation.[cxxiv] As such, upstream technologies that improve the efficiency and reduce the cost of mining, processing or transporting coal could play an important role in improving the competitiveness of the existing fleet by reducing delivered fuel costs, which would improve dispatch priority and reduce the wear and tear from cycling.

In the past, these advances helped to boost U.S. coal mining productivity more than sixteen-fold, from 601 tons per employee-year in 1900 to 9,932 tons per employee-year in 2000, and brought even greater improvements in workplace safety.[cxxv,cxxvi,cxxvii] However, while incremental technological enhancements have continued to be introduced, overall productivity in the U.S. coal mining industry has declined during the past 20 years (see Figure 20).[cxxviii]

The recent decline in productivity suggests that advances in coal mining technology have failed to keep pace as the most prolific reserves have continued to be mined out (i.e., mines are increasingly moving to reserves characterized by thinner coal seams, more challenging geological conditions and thicker overburden). In contrast, the introduction of horizontal drilling and hydraulic fracturing technologies have allowed previously uneconomic shale gas reserves to become a major part of U.S. natural gas production and driven a more-than thirty-fold increase in new gas well productivity in the Appalachian Region since 2007.[cxxix] A similar transformational change in coal mining technology would have major implications for the economic viability and utilization of the existing coal fleet.



AMERICAN OVERSIGHT

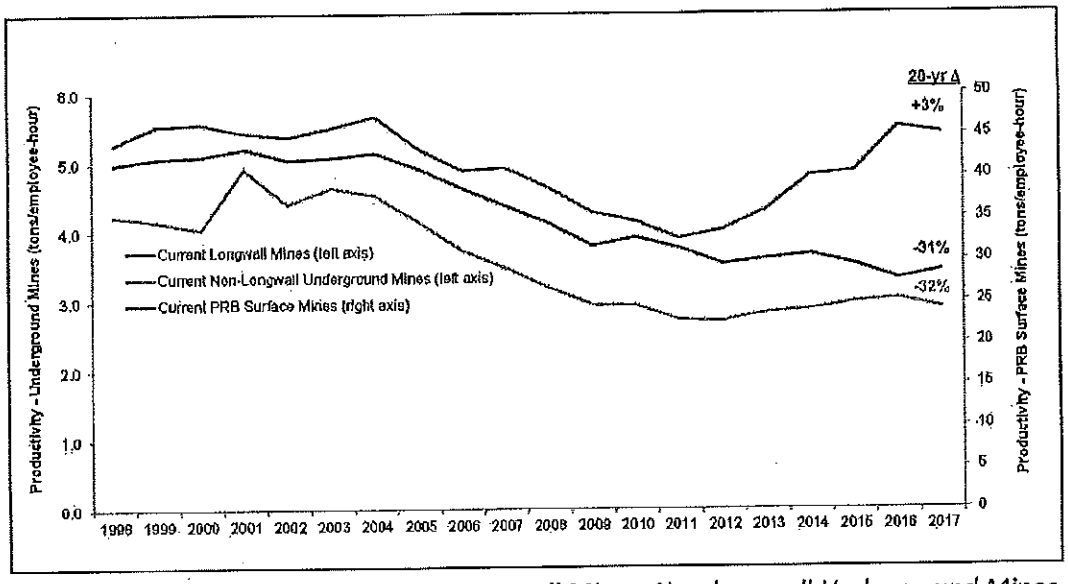



*Figure 20. Productivity Trends for U.S. Longwall Mines, Non-longwall Underground Mines and PRB Surface Mines in Operation as of 2017*

The National Research Council (NRC) studied upstream aspects of the coal industry and found that of more than $538 million spent by Federal government agencies for coal-related research and technology deployment in 2005, less than 10% was directed toward upstream aspects of the coal industry.[cxxx] The NRC recommended that "There should be renewed support for advanced coal mining and processing research and development ... The focus of this R&D should be on increased integration of modern technology in the extraction and processing phases of coal production, with particular emphasis on emerging advances in materials, sensors, and controls; monitoring; and automated mining systems."[cxxxi]

Opportunities for new technology implementation in coal mining and processing include automation and robotics, big data and advanced computing to improve mining productivity and efficiencies, fully remote mining technologies and advanced coal recovery and upgrading technologies. In underground coal mining, automated longwall shearer systems are offered commercially; these systems can boost efficiency by producing repeatable cuts, reducing the amount of rock that is mined with the coal, and reducing equipment wear and maintenance downtime.[cxxxii] There is a need to extend automation to continuous miners, which account for a majority of the labor and cost required in both longwall mines and room-and-pillar mines, and to develop improved technologies for detecting the horizon of the coal seam (which is still done visually by the operator, even in automated longwall applications).



AMERICAN OVERSIGHT
EXT-18-2615-G-000133

To highlight the magnitude of the opportunity, in general, for a typical continuous miner development unit in a longwall mine, less time is spent mining than is spent for routine and non-routine delays, providing a rich opportunity for improvements.[cxxxiii] Notably, R&D funding, testing and implementation of new technologies underground will require cooperation from the Mine Safety and Health Administration (MSHA) to expedite the review and approval of these technologies for underground use.

In surface mining, efforts in the area of automation have focused largely on haul trucks, which provide one of the greatest opportunities to reduce unit cost.[cxxxiv] However, EY notes that "This innovation has slowed. The first automated truck trials were 20 years ago, yet we still do not have a fully automated pit."[cxxxv] Automated haulage concepts could also be extended to underground mining applications.

There is an opportunity to take advantage of state-of-the-art digital technology, including consolidated data platforms, real-time analytics and optimization, advanced control systems, artificial intelligence and machine learning, and predictive maintenance to improve decision making and reduce downtime across the many interdependent processes involved in a mining operation. With respect to underground mining operations, continued development of wireless communication technologies capable of operating in an underground environment will be important for enabling the implementation of these digital technologies.[cxxxvi] Opportunities for application of big data and advanced computing technologies also extend to coal preparation and transportation operations. EY notes that companies that successfully use data outperform their peers by 20%.[cxxxvii]

Fully remote mining technologies would represent a transformational change in coal production. Leveraging experience in oil and gas horizontal drilling could present a novel approach for extracting coal from deep (>2,000 ft) seams, potentially reducing the cost of mining and providing access to high-quality resources that are uneconomic to mine with conventional technologies.[cxxxviii] However, further proof of this concept is needed.

Coal Upgrading

There are material opportunities to further develop coal washing and upgrading.[cxxxix] These technologies have the potential to reduce delivered fuel costs (on a $/mmBtu basis), improve efficiency and reduce variable O&M costs at the power plant.

For example, when high-moisture lignites are burned in utility boilers, about 7% of the fuel heat input is used to evaporate fuel moisture.[cxl] The use of high-moisture coals results in higher fuel use, higher flue gas flow rate, lower plant efficiency, and higher mill, coal pipe and burner maintenance requirements compared to that of the low-moisture coals such as eastern bituminous coals. Despite problems associated with their high-moisture content, lignite and sub-bituminous coals from the western U.S. are attractive due to their low cost, lower content of sulfur and mercury (Hg), and lower $NO_x$ emissions.



AMERICAN OVERSIGHT

In terms of coal upgrading, there is sufficient opportunity for U.S. low-rank coals, which have moisture contents ranging from 15% to 30% for sub-bituminous coals and from 25% to 40% for lignites. Coal upgrading processes at the power plant, such as DryFining™ (DOE Award Number DE-FC26-04NT41763), improves the heat content of low ranks coals, upgrading lignite from 7,503 Btu/lb to 10,397 Btu/lb and upgrading Powder River Basin (PRB) subbituminous coal from 8,830 Btu/lb to 11,329 Btu/lb.[cxii] The extracted water can be used within the power plant, thereby reducing water withdrawal and consumption from local water supplies by 20% to 25% for water-cooled plants The resulting efficiency improvement for a nominal 600 $MW_e$ plant is significant in that it results in a net power increase of 30 $MW_e$ for lignite and 34 $MW_e$ for PRB coal.[cxiii] Increased efficiency also lowers criteria emissions on a MWh basis, in addition to reducing $CO_2$. Table 2 shows what was accomplished by coal drying and cleaning on North Dakota lignite. The amount of emission reduction and efficiency improvement gained is dependent on the amount of thermal heat brought to the process.

*Table 2. Results of the Dry Fining Process*[cxliii]

| Component | Amount of Reduction | Explanation |
|---|---|---|
| Fuel $H_2O$ | 25% | Dries lignite from 38% to 29% moisture, improving HHV from 6,100 to 6,800 Btu/lb |
| $SO_2$ | 54% | Segregation of ash minerals, plus improved collection efficiency |
| $NO_x$ | 32% | Reduced volumetric release rate, improved fineness and air and fuel distribution to furnace |
| $CO_2$ | 4% | 4% improved cycle efficiency |

Coal preparation and beneficiation processes also offer value for higher rank coals. Many bituminous coals, such as coals from the Appalachian and the Illinois Basins, are washed in preparation plants to remove impurities (e.g., ash) and improve heat content. Washed coals, however, need to be dewatered. Recently, there has been a technology push to improve recovery of coal from the wet, fine coal refuse streams produced by these preparation plants, which have traditionally been disposed in slurry impoundments, and instead use those streams to produce high-quality coal or carbon products for use as power plant fuel or in alternative applications.[cxliv,cxlv,cxlvi] These emerging processes have the potential to improve economic and environmental performance at both the coal mine and the end-use power plant.

In addition, mercury, arsenic and selenium heavy metals removal can be achieved to improve multi-pollutant emissions control performance and cost. Figure 21 shows the reduction of mercury achieved during bench-scale testing. Likewise, for PRB coal, arsenic was reduced from 4.8 parts per million detected (ppmd) to 1.8 ppmd and from 1.0 ppmd to 0.8 ppmd for selenium. A reduction in $NO_x$ emissions up to 41.3% for lignite and 23.2% for PRB coal was also observed.[cxlvii]



AMERICAN OVERSIGHT

EXT-18-2615-G-000135

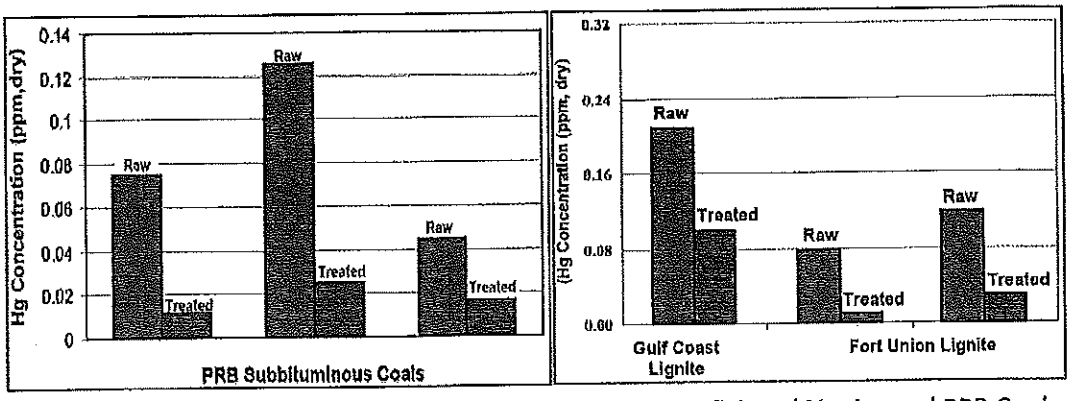



*Figure 21. Bench-scale Mercury Removal Test Results Beneficiated Lignite and PRB Coals*

Coal beneficiation processes provide significant performance, reliability and O&M benefits to the plant, as well as improving the potential fuel flexibility of the plant. Increased fuel flexibility directly benefits the busbar generation cost and dispatch importance of the power plant, which results in potential life extension of the valuable asset.

Improving Plant Efficiency

Coal plant efficiency improvement has proven to be one of the most vexing topics over the last decade. The topic is both diverse and complex. New technologies, such as high efficiency, low emissions (HELE) plants, offer dramatically improved efficiency and lower $CO_2$ emissions versus subcritical coal plants. For existing plants, there are substantial differences in potential improvements due to differences in in technology, vintage, operational duties, environmental compliance equipment and coal sources. Finally, regulatory uncertainties, especially around New Source Review, have limited the ability of owners of existing plants to aggressively pursue energy efficiency improvement opportunities.[9] In spite of these challenges, energy efficiency improvement remains a viable means to improve the competitiveness of and reduce emissions from coal-fired power. Retrofit and repowering options are discussed below.

Retrofits. For existing coal plants, the degree to which efficiency improvements can be realized is largely a function of level of capital expenditures made to either refurbish or in some cases upgrade existing plant systems. Aging plants, uncertainty in role/length of remaining service and lack of priority in maintaining optimal plant efficiency mean that most, if not all, coal plants would have substantive capability to realize efficiency improvement. There is no single formula that can be applied across all plants and, hence, the cost/benefit associated with improvements needs to be factored into such decisions.

[9] As noted in the policy section of this chapter, NSR reform has been proposed as part of the EPA's Affordable Clean Energy plan.



AMERICAN OVERSIGHT

Without substantial capital investment, improvements on the order of 1% to 2% can often be realized by tighter operational control of the plants and use of performance optimization tools/processes and plant tuning. Substantially higher improvements, on the order of 4% to 6% in efficiency gains, can generally be achieved if business-justified (acceptable cost/benefit ratios) capital investment is made. Plant improvements can also target ramping, load range or other factors that have the potential to add value to the plant.

Efficiency improvement opportunities can be classified, generally, into heat rate improvements for boiler/air systems, for turbine/condenser and via improved controls. The degree of improvement will vary by equipment present, its condition, and plant operating conditions, and will require a pragmatic plant condition and upgrade assessment. Fortunately, significant effort has been carried out to define such programs. Specifically, data analysis conducted by NETL and a consensus of selected industry experts indicate that this opportunity is technically and economically achievable, but will require leadership from power plant owners and operators and commitments from regulators, vendors, federal agencies, etc.[cxlviii]

Audits or other methods can be applied to validate the sources and magnitude of efficiency improvements to be realized; a representative cost/benefit analysis is shown in Figure 22. As can be seen from the figure, targeted areas for capital investment can be broad, and include the boiler, turbine, air/gas handling and auxiliary systems. Combustion optimization systems, performance management systems and advanced monitoring and diagnostics systems enable more efficient operations and optimize fuel/gas/air/sootblower volumes.

Some newer and emerging opportunities may be able to improve efficiency or reduce power plant costs without major capital investment. For example, artificial intelligence and/or predictive maintenance enabled by big data analysis, etc., could help optimize plant operations. These options could be especially important when plants are cycling more than what they were originally designed to do.



AMERICAN OVERSIGHT

| Project Name | Capital Cost | B/C Ratio | B/C Ratio Rank |
|---|---|---|---|
| Circulating Water Pump Refurbishment | Low | High | 1 |
| Sootblowing Steam Source | Low | High | 2 |
| Coal Mill Inerting Source | Low | High | 3 |
| Add Condensate Polishing | Medium | High | 4 |
| HP/IP/LP Turbine Upgrade | High | High | 5 |
| Coal Mills Replacement | High | High | 6 |
| Boiler Feed Pump Refurbishment | Low | Moderate | 7 |
| Helper Cooling Tower Replacement & Pumps | Medium | Moderate | 8 |
| Replace Flame Scanners | Low | Moderate | 9 |
| VFD's for Forced Draft Fans | Medium | Low | 11 |
| Air Heater Overhaul | Medium | Low | 10 |
| Replace Air Preheat Coils | Low | Low | 12 |
| VFD's for Induced Draft Fans | Medium | Low | 13 |
| Alternate Air Heater Overhaul | Medium | Low | 14 |
| Alternate Air Preheat Coils Modification | Medium | Low | 15 |

*Figure 22. Coal-fired Power Plant Efficiency Audit Results*

*Repowering.* NETL has recently studied the prospect of repowering coal-fired power plants that have invested in full air pollution control equipment, but that have a lower operating efficiency.[cxlix] The study assumes that a power plant boiler, turbine and other steam cycle components could be replaced while continuing to use the existing air pollution control equipment and electricity generating and transmission infrastructure. In its study, NETL found that a repowering would cost about half that of building a new coal-fired power plant at a greenfield site. NETL concluded that there were no technical limitations to a repowering. However, there are likely regulatory hurdles, such as meeting New Source Performance Standards (a regulation under review by EPA) that would need to be better understood and addressed before any such repowering could occur. Still, this represents an important opportunity to continue to rely on existing infrastructure assets while investing in a new steam cycle that could be more competitive and offer lower emissions than the equipment it replaces.

Improving Flexibility

With the rapid increase in IRE generation, there is significant pressure on existing dispatchable coal resources to meet load and balance intermittency. In light of projections that IRE penetration will increase significantly in the coming years, the severity of this problem is expected to increase precipitously. While new power plants can be designed to be more flexible, there are some technologies that can assist the existing fleet to meet the needs of a diverse energy mix that includes greater IRE penetration.



AMERICAN OVERSIGHT

While the existing coal fleet is presently able to deliver variable output to stabilize the grid, this comes at a cost in terms of lower plant efficiency, higher maintenance expenses and shorter life expectancy. Plant cycling results in 1) increased capital expenditures for component replacement, 2) increased routine O&M costs due to increased wear and tear, 3) lower availability due to increased failure rate and outage time and 4) higher fuel consumption during startup and shutdown due to inefficient heat transfer and non-optimum heat rate.

EPRI has described[d] the damage mechanisms associated with conventional coal power plant cycling, and has also made recommendations for improving plant management, operation, monitoring, design, staff levels and training to optimize plant life cycle costs. There are some changes that can be made to power plants to improve their ability to cycle. EPA, in its recently proposed Affordable Clean Energy plan, has included variable frequency drives in its list of potential Best System of Emissions Reduction (BSER). Application of this technology could improve flexibility and improve efficiency as the existing coal fleet as it is increasingly required to ramp.

Nonetheless, with the rapid growth of wind and solar installations, more aggressive measures are needed to ensure the stability of the grid. A common misconception is that the challenges of IRE can be addressed with battery power storage. The impracticality of this can be understood by evaluating the economics of the Tesla battery pack installed at the Neoen Wind farm in Australia, where the cost of electricity storage is ~$430/kWh.

A potentially lower-cost alternative to battery storage is thermal energy storage (TES) which utilizes steam turbine assets combined with thermal storage technologies. Depending on the storage technology, capital costs can be on the order of $100/kWh, a factor of three to four less than for Li-ion batteries.

The concept behind TES is somewhat analogous to a hybrid electric vehicle in that it allows the coal-fired power plant to continuously operate at maximum efficiency, reducing the damaging impacts of cycling while storing energy for later use during periods of high demand. This approach to storage should be considered prior to decommissioning of coal plants, especially when decommissioning of one plant could lead to increased cycling for another, newer unit at the same site. For example, often a coal unit may be retired, while adjacent existing units are newer and more efficient, and have modern environmental controls. Under these conditions, rather than facing the damage and costs associated with cycling the newer units, TES can be employed in combination with the old (to be decommissioned) steam turbine.

TES is an established technology that has been applied for utility scale concentrated solar power (CSP) to allow for power generation when sunlight is not available. CSP systems typically use a molten-salt mixture to store high-temperature heat during the day for subsequent steam generation in the evening hours. Materials other than phase-change materials are also possible, e.g., concrete and sand.



AMERICAN OVERSIGHT

A recent EPRI study investigated the economic feasibility of using various TES systems to facilitate flexible dispatch of electrical power from fossil plants.[cli] This study concluded that TES can be a more cost-effective approach to stabilizing the grid than adding gas turbine peaking units or batteries, and could improve the competitiveness of the coal-fired power fleet if it was utilized in a way that reduced the frequency and rate of rapid ramping (see Figure 23).

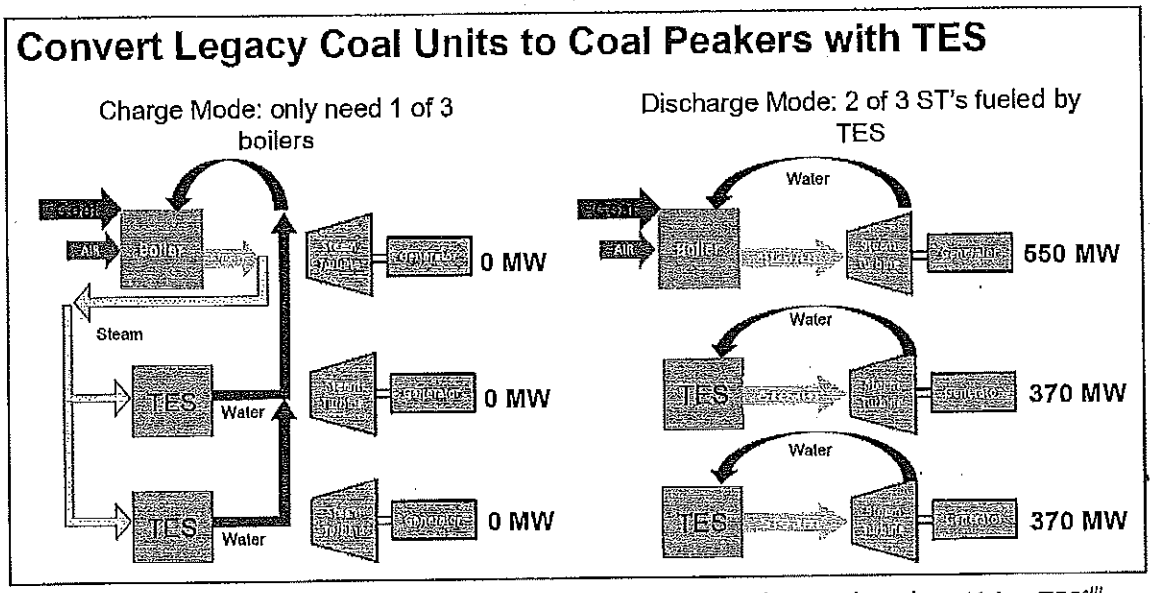



*Figure 23. Charge and Discharge Mode for Coal Units Converted to Coal Peakers Using TES[clii] (used with permission from EPRI)*

Notably, other forms of energy storage could also be integrated with the existing coal fleet. Pumped hydro, batteries and any other option for energy storage could be integrated with the existing coal fleet or onto the grid, potentially reducing the frequency and rate of ramping.

Reducing the Cost of Environmental Retrofits

Today's coal-fired electric generating units have successfully controlled emissions such as $SO_2$, $NO_x$, PM, mercury and other air toxics to meet regulatory requirements under the Clean Air Act, the MATS and other regulations. The economic competitiveness of coal-fired electric generating units could be improved through the development of technologies to enhance efficiency and lower operating costs of air emissions control systems.

For example, new $SO_2$ scrubber designs that reduce the energy penalty of scrubbing (e.g., by reducing pressure drop across the scrubber), new reagents and additives which improve scrubber reactivity and scrubbing chemistries that produce valuable byproducts, represent potential avenues for plants to decrease operating costs associated with $SO_2$ controls.



AMERICAN OVERSIGHT

Likewise, similar gains could be made with improved $NO_X$ control technologies with lower capital and operating costs as well as reduced sensitivity to the composition of the coal ash. Improvements in the systems to control flue gas impurities, such as $SO_X$, $NO_X$, and PM, can also benefit performance of $CO_2$ capture systems by reducing the degradation of $CO_2$ solvents and adsorbents.

In terms of water discharge from coal-fired power plants, the Effluent Limitation Guidelines for Steam Electric Generating Plants is currently pending reconsideration by the EPA. The rule published in 2015 set requirements for the discharge of arsenic, mercury, nitrogen and selenium in wastewater streams from FGD processes; it also required zero-discharge of pollutants from bottom ash transport water and addresses other wastewater streams. EPA estimated in 2015 that 181 of the nation's steam electric generating stations (all of which are coal-fired power plants) would need to make new investments to comply with the rule.[cliii] The Office of Management and Budget (OMB) prioritizes the rule as "economically significant",[cliv] with the EPA estimating annual compliance costs for the final rule at $480 million per year.[clv] DOE-NETL has funded programs to improve effluent water management at coal-fired electric generating plants, although funding amounts have historically been modest.[clvi]

There may be opportunities in both the areas of air emissions and water effluent to reduce the technology cost associated with meeting environmental standards. Existing coal-fired power plants with limited remaining life are sensitive to the payback periods for investment in new technologies. There is a role for the Department of Energy to reduce the cost of new technologies and to promote innovative financing opportunities so that aging plants can adopt the new technologies that are being developed in the U.S. and around the world.

Carbon Capture Opportunities

CCUS could play a critical role in reducing the number of coal-fired power plant shutdowns, by providing retrofit solutions with improved operational economics and near-zero emissions. This would be the case if the costs for CCUS can be lowered and/or revenue from $CO_2$ sales can be increased to the point at which CCUS projects become profitable. Recently there has been considerable progress in CCUS, with the commissioning and successful operation of the Petra Nova facility for over one year. However, this is the only full-scale CCUS project in the U.S. coal fleet. To reduce the costs associated with $CO_2$ capture and close the gap with potential sources of revenue by using the captured $CO_2$, many more such projects are needed – achieving technical advances through learning-by-doing, improved financing opportunities, etc.



AMERICAN OVERSIGHT

Having multiple CCUS technologies commercially available would spur competition and be beneficial for the coal fleet; no single technology solution is likely to fit all the different types of plants. Currently in the U.S., only one technology has been demonstrated at the commercial scale, although many are ready for demonstration. For example, oxy-combustion technology has been available for demonstration since 2010, but has not been tested at scale in the U.S.

The demonstration of CCUS technologies on a commercial scale plant is essential in order to move to commercial deployment. However, given the financial scope of a CCUS retrofit commercial scale demonstration project, and risks for the private sector and financial community, government support is essential for demonstration of new CCUS technologies. Grants, similar to the $190 million provided to the Petra Nova project, are a critical tool for advancing other first-of-a-kind demonstrations. The lack of additional government support for large-scale projects has impeded additional CCUS deployment.

Time is of the essence for the DOE to initiate efforts for new CCUS demonstration projects, in part because the reform of the 45Q tax credit represents an important opportunity to enhance the economics for early-mover projects. Given the large number of coal-fired power plants in close proximity to EOR opportunities across the U.S., CCUS deployment could be extensive, once successfully demonstrated. Demonstrations will help reduce costs and further deployment of CCUS technologies. The window for claiming the 45Q tax credit requires construction to begin before the sunset date of January 1, 2024, which may act as a limiting factor for broad application. Further deployment and advancement of CCUS technologies will pave the way for CCUS opportunities well into the future.

Rare Earth Elements

Rare earth elements (REE) are necessary materials in an incredible array of consumer goods, energy system components and military defense applications. Major market segments that rely on REE-based products or technologies include health care, transportation and vehicles, lighting, renewable energy systems, communications systems, audio equipment, military defense technologies and modern electronics. However, the global production and entire value chain for rare earth elements is dominated by China; the U.S. is currently completely reliant on imports of these critical materials.

There are numerous challenges associated with pursuing alternative sources of REEs, such as traditional mineral ores. Chief among these is that the content of the most critical and valuable of the REEs are deficient, making mining for these materials uneconomical. Further, the supply of these most critical rare earths is almost exclusively produced in China from a single resource that is only projected to last another 10 to 20 years. As a result, the U.S. currently considers the rare earths market an issue of national security, and accordingly, it is imperative that alternative domestic sources of rare earths be identified and methods developed to produce them.



AMERICAN OVERSIGHT

Recently, coal and coal byproducts have been identified as one of these promising alternative resources.[clvii] DOE is actively supporting studies to both characterize U.S. coal feedstocks for assessing the feasibility for REE recovery and to develop ways to improve their extraction.[clviii] While REEs are used in relatively small volumes, they could provide a secondary source of revenue for coal mines, or slightly boost consumption, which could potentially lower fuel costs and thus benefit the competitiveness of the existing fleet.

Boosting Revenue by Co-locating Other Coal Uses

New markets for coal are being pursued worldwide for various applications. China, Korea, Japan and South Africa are already pursuing conversion of coal to synthetic oil, transportation fuels hydrogen and industrial chemicals. In the U.S., efforts are also underway to convert coal into advanced materials, such as carbon fibers, that can be used in aerospace, infrastructure, automotive and energy applications.[clix]

In the U.S. there are potential opportunities to co-locate new technologies for processing coal at existing power plants and to enhance the use of U.S. coal in markets beyond those for power generation. These new markets for coal include coal conversion (coal to liquids, coal volatiles directly to transport fuel, coal to gas, coal to chemicals); carbon engineered products (value-added non-Btu products); REEs; methanol; and biotechnology approaches (agriculture, liquid fuels) among others.

In all instances, the coal conversion process itself requires electricity, providing the existing plant with a new dedicated customer. In some instances, the conversion process itself will use electricity as the primary heat input to disassociated atoms for recombination into coal resins (coal tar).

RD&D Recommendations from the CURC-EPRI Roadmap

As noted earlier in this report, coal plants are being called upon in today's markets to operate more flexibly in a range of cycling modes as power generators expand their use of IRE. This is resulting in units operating at much lower capacity utilization factors than originally designed as a baseload system. The consequences of the lower capacity factor result in greater complexity in managing the numerous sub-systems within the power plants and it can be economically challenging for those units to recover costs in some markets. Operating in a flexible mode also results in significant wear and tear, which could compromise these units in the future if research is not undertaken to understand and remedy the impacts of rapid and frequent cycling.



AMERICAN OVERSIGHT

The CURC-EPRI Roadmap[clx] identifies a comprehensive research program for addressing these impacts on existing coal and gas power generation systems. This includes RD&D to provide:

- Improved technologies to reduce the cooling water consumption
- Improved approaches to treat power plant water effluent and manage byproducts
- Improved criteria emissions control systems, capable of performing well (i.e., maintaining high capture efficiencies) on units with flexible modes of operations
- Improved ability to operate with different fuels, such as biomass co-firing
- Improved net plant efficiency through combustion optimization, advanced controls, the use of advanced topping or bottoming cycles and waste-heat utilization
- More reliable operation for units operating in "cycle mode" by developing improvements in welding and component fabrication using new materials and by providing improved diagnostic techniques, including better sensors and controls for early identification of "wear and tear" problems
- Developing advanced (high-temperature-tolerant) materials for units undergoing replacement of major subsystems
- Demonstration of A-USC components for possible retrofit to improve efficiency, capacity factor and reliability of existing power plants

The Roadmap does not specifically recommend $CO_2$ capture technology development tailored for existing units, but notes that many types of $CO_2$ capture technologies designed for new facilities would also be practical for existing fossil-fired power plants if RD&D can sufficiently reduce costs and mitigate significant negative impacts on plant efficiency. Consideration of $CO_2$ capture on existing units not only must take into consideration costs, but other site-specific issues such as access to EOR or other geologic storage options, and the amount of space available onsite to accommodate the equipment to capture and transport $CO_2$.

## Conclusions

Although there are many challenges facing the existing U.S. coal fleet, it continues to play an important role in the current diverse energy mix, A wide range of policy mechanisms, market changes and technology solutions exist or could be developed that could enable this fleet to continue to play an important role in the U.S. electricity system well into the future. DOE has the ability to take action and/or influence many of the key areas discussed throughout this section that would benefit the nation's coal fleet.



AMERICAN OVERSIGHT

# Chapter 4: Key Recommendations and Findings

The existing U.S. coal fleet offers unique benefits and value in the nation's interests that must be valued or it will continue to erode. Accordingly, the National Coal Council advocates a four-step approach –

**ASSESS | SUPPORT | REFORM | RENEW**

## Strategic Objectives

The key strategic objectives of this approach are:

**ASSESS** the value of the coal fleet.

Steps must be undertaken to ensure that the reliable and resilient attributes of U.S. coal generation are acknowledged and that the nation's existing coal fleet is equitably compensated for the services it provides. Firm, dispatchable power must remain a sustained part of the nation's fuel mix; targeted minimum levels for key fuel sources should be strongly considered.

**SUPPORT** efforts to retain continued operation of the existing coal fleet.

By ensuring compensation for all the attributes of the existing coal fleet, put an end to the precipitous retirement of dispatchable coal. This can provide an opportunity to assess future power demand scenarios and the ability of various energy resources to realistically, reliably and resiliently meet those needs. Economic and regulatory support are needed to stem the tide of plant retirements and ensure the sustainability of a diverse energy portfolio.

**REFORM** the regulatory environment.

The efficiency, environmental performance and cost-competitiveness of the existing U.S. coal fleet can be enhanced with reforms to various regulatory mandates. Environmentally permitted investments should be afforded the opportunity to recoup value over their useful life and enable the power grid to take full advantage of existing resources. Just compensation is warranted should that opportunity be denied.

**RENEW** investment in coal generation.

Optimizing existing coal fleet assets requires a targeted Research Development, Demonstration & Deployment (RDD&D) program focused on increasing the efficiency, flexibility and competitiveness of the fleet. Public funding and support mechanisms, complemented by public-private partnerships will ensure grid reliability, dispatch effectiveness and power system resilience.



AMERICAN OVERSIGHT

## Tactics

Specific actionable items recommended to achieve strategic objectives are detailed here. Tactical recommendations are framed to specify WHAT must be done and WHY.

**ASSESS** the value of the coal fleet.

- Establish a uniform definition of grid resilience.
  *A standardized definition of resilience is needed in order to assess and compensate the value of various energy resources and the range of grid services they supply.*

- Assess the fuel security of ISOs/RTOs.
  *Fuel security is critical to grid resilience as it enables the grid to absorb and recover quickly from manmade or natural disruptions in the power system.*

- Establish quantitative metrics against which to evaluate grid resilience.
  *Resilience metrics can be used to assess and equitably compensate electricity generators for services provided.*

- Evaluate the experience of other nations regarding the value of firm, dispatchable power and challenges associated with intermittent renewable energy deployment.
  *Lessons learned from other nations are instructive in defining pathways to a stable and sustainable energy future for the U.S.*

**SUPPORT** efforts to retain continued operation of the existing coal fleet.

- Provide appropriate economic and regulatory incentives to stem the tide of plant retirements.
  *Acknowledge the significant and disproportionate impact on the existing U.S. coal fleet of market distortions, over-regulation and regulatory uncertainty.*

- Establish an environment that values and compensates diversity.
  *Resource diversity is critical to maintain a reliable and resilient grid, especially in the event of manmade and natural high impact-low frequency events.*

- Support mechanisms to immediately compensate the U.S. coal fleet for the essential services it provides.
  *Acknowledge the explicit economic, dispatchable and grid-resilient value provided by the existing U.S. coal fleet.*



AMERICAN OVERSIGHT

**REFORM** the regulatory environment.

Policy Reforms

- Reform New Source Review rules.
  *Eliminate regulatory uncertainty and reduce litigation risks for utilities seeking to implement energy efficiency measures and enhance operational flexibility solutions at coal plants.*

- Reform the Public Utilities Regulatory Policies Act of 1978.
  *Reforms will more realistically reflect today's electricity landscape and ensure utilities are not forced to purchase power they do not need.*

- Revise the 2015 Coal Combustion Residuals ruling.
  *Reforms could provide states and utilities with flexibility in how CCR is managed.*

- Support changes to Effluent Limitation Guidelines establishing wastewater treatment standards.
  *Changes would support standards that could be more realistically and cost-effectively met with technologies commensurate with the resultant health and welfare benefits realized.*

- Advance $CO_2$ storage laws and regulations on Federal and tribal lands.
  *Regulations could facilitate deployment of CCUS technologies by existing coal plants located near Federal and tribal lands.*

- Engage EPA as it progresses the Affordable Clean Energy plan.
  *Provide technical guidance to EPA on the potential technologies and the role of efficiency gains and flexibility improvements that could reduce emissions from the existing fleet.*

Market Reforms

- Support FERC capacity market reform initiatives.
  *Provides opportunities to ensure that resilience, fuel diversity and/or fuel security are valued along with low electricity prices and transmission reliability.*

- Support FERC initiatives to refine ISO/RTO price formation.
  *Allows fuel-secure resources to set locational marginal prices, eliminate negative pricing, establish a price floor for fuel-secure resources and require the value of tax and other subsidies to be imputed into market bids of subsidized resources.*

- Support FERC efforts to establish and enforce standards for essential reliability services.
  *Allows for a more realistic assessment of attributes, such as fuel security, that support a reliable and resilient grid.*

- Support efforts by ISOs/RTOs to conduct assessments evaluating fuel security and resilience of the bulk power system.
  *Assessments provide critical data on the resilience of wholesale electricity markets.*



AMERICAN OVERSIGHT

Tax Reforms

- Support legislative initiatives to provide temporary tax credits to cover a portion of O&M expenses for existing coal plants.
  *Offsetting a small portion of O&M expenses for the existing coal fleet is estimated to prevent the retirement of as much as 24,000 MW of coal-fired generation.*

- Support legislative initiatives that would complement and further incentivize utilization of the 45Q tax credit for existing coal plants, including Master Limited Partnerships and Private Activity Bonds.
  *The recent 45Q tax credit reform provides an important Federal incentive encouraging private investment in the deployment of carbon capture technologies. Additional Federal incentives would complement 45Q and enable more capture projects to become commercially feasible.*

- Support changes to the 48A tax credit, such as removing the efficiency increase requirement that would facilitate retrofits of CCUS technology to the existing coal fleet.
  *In its current form, the tax credit does not incentivize CCUS on new or existing coal plants.*

**RENEW** investment in coal generation.

- Support the development and deployment of the following technologies.
  *Government and public-private partnership support for advanced coal technologies enhances the competitiveness, efficiency and environmental performance of the existing coal fleet.*

  - Advanced coal mining and processing technologies.
    *Renewed R&D initiatives would enhance productivity and cost-competitiveness of coal supply. Working in concert with MSHA would help expedite the review and approval of these technologies.*

  - Coal beneficiation technologies, including coal washing and upgrading.
    *Advanced R&D initiatives would improve power plant performance and reduce operating costs.*

  - Retrofitting and repowering technologies.
    *Various technologies and processes could be deployed at existing plants to improve energy efficiency and coal plant cost competitiveness.*

  - Energy storage technologies.
    *Various storage technologies – notably Thermal Energy Storage – could potentially allow coal-fired power plants to continuously operate at maximum efficiency while reducing the damaging impacts of cycling.*



AMERICAN OVERSIGHT

- Advanced air emissions control system technologies.
  *Enhancements to existing technologies could improve efficiency and reduce costs associated with controlling $SO_2$, NOx, PM and Hg.*

- Water effluent technologies.
  *R&D initiatives are needed to reduce technology costs associated with meeting environmental standards.*

- Carbon capture technologies/projects, including demonstrations at commercial scale retrofitted to existing coal-fired units.
  *Only one CCUS retrofit project is operational in the U.S. today. More projects would reduce costs associated with $CO_2$ capture, improve project financing opportunities and advance technical knowledge.*

- Rare earth element extraction from coal and coal byproducts.
  *R&D initiatives could advance the development of and reduce the costs associated with REE extraction, providing a secondary source of revenue for coal producers/consumers and enhancing the cost-competitiveness of the existing fleet.*

- New advanced markets for coal technologies such as coal conversion, carbon engineered products and other coal-derived value-added products.
  *Co-locating coal-to-X projects at existing coal plants could support the economics of both facilities.*

- Technologies identified in the CURC-EPRI Roadmap that enhance the efficiency and cost-competitiveness of the existing coal fleet.
  *Provides a focused and comprehensive R&D program to address the many and varied coal generation system components in concert.*

- Promote education and awareness about the water-energy nexus.
  *Education enhances national water planning processes and facilitates a more reasoned approach to decision and policy making.*

- Promote initiatives to enhance transparency about the inherent costs and benefits associated with all U.S. energy resources.
  *Provides a more reasoned approach to energy decision and policy making.*



AMERICAN OVERSIGHT

## APPENDIX 1A – Definitions of Reliable and Resilient

There is a need to establish a uniform definition of grid resilience. The Federal Energy Regulatory Commission (FERC) initiated efforts in January 2018 to define resilience and to assess whether the U.S. bulk power system is, in fact, resilient. In addition, PJM and ISO-NE are undertaking studies to assess the fuel security of their respective systems.[clxi]

- The Federal Energy Regulatory Commission (FERC): Resilience is "... the ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event."
- PJM's definition of resilience focuses on HILF events. "The ability to withstand or quickly recover from events that pose operational risk."
- The North American Electric Reliability Corporation (NERC) defines Bulk Power System reliability as a function of adequacy and operating reliability. In this context, NERC defines adequacy as, "the ability of the electric system to supply the aggregate electric power and energy requirements of the electricity customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system components." Operating reliability is defined as, "the ability of the electric system to withstand sudden disturbances to system stability or unanticipated loss of system components."[clxii]
- National Academy of Sciences, Engineering and Medicine (NAS): A reliable electric system minimizes the likelihood of disruptive electricity outages, while a resilient system acknowledges that outages will occur, prepares to deal with them, and is able to restore service quickly and draws lessons from the experience to improve performance in the future.[clxiii]
- National Infrastructure Advisory Council (NIAC) definition of resilience:
- "Infrastructure resilience is the ability to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends on its ability to anticipate, absorb, adapt to and/or rapidly recover from a potentially disruptive event."[clxiv]
- Absorptive Capacity – ability to endure a disruption without significant deviation from normal operating performance
- Adaptive Capacity – ability to adapt to shock to normal operating conditions
- Recoverability – ability to recover quickly and at low cost from disruptive events



AMERICAN OVERSIGHT

## APPENDIX 1B – Reliable and Resilient Attributes

Markets must value resiliency as well as reliability. While there are quantitative metrics on which to evaluate the reliability of the grid, there are no agreed-upon criteria to determine if a grid is resilient.

**Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type**

| Attribute | Coal | Natural Gas | Wind/Solar | Nuclear | Demand Response |
|---|---|---|---|---|---|
| Dispatchability | ✓ | ✓ | | ✓ | |
| Inertia | ✓ | ✓ | ✓(wind) | ✓ | |
| Frequency Response | ✓ | ✓ | ✓ | | |
| Contingency Reserves | ✓ | ✓ | | | ✓ |
| Reactive Power | ✓ | ✓ | | ✓ | |
| Ramp Capability | ✓ | ✓ | | | ✓ |
| Black Start | | ✓ | | | |
| Resource Availability | ✓ | ✓ | | ✓ | |
| On-Site Fuel Supply | ✓ | | | ✓ | ✓ |
| Reduced Exposure to Single Point of Disruption | ✓ | | ✓ | ✓ | ✓ |
| Price Stability | ✓ | | ✓ | ✓ | ✓ |

Source: PA Consulting

- Dispatchability – The operation of baseload power plants can be scheduled well in advance to meet predicted load with minimal need to forecast factors which affect many other generation technologies. Over shorter time-frames, baseload power can be adjusted to increase or decrease output as necessary, providing flexibility in meeting fluctuations in demand.

- Frequency Response – active control to maintain a constant 60 Hz to keep grid operating safely and reliably.

- Inertia – When load changes occur rapidly in a system with baseload power, the inertia provided by these heavy rotating machines resists the changes in frequency helping the grid ride through disturbances.

- Frequency Response – Provides active control to maintain a constant 60Hz – this is the frequency that must be maintained to keep the grid, and all connected equipment, operating safely and reliably.



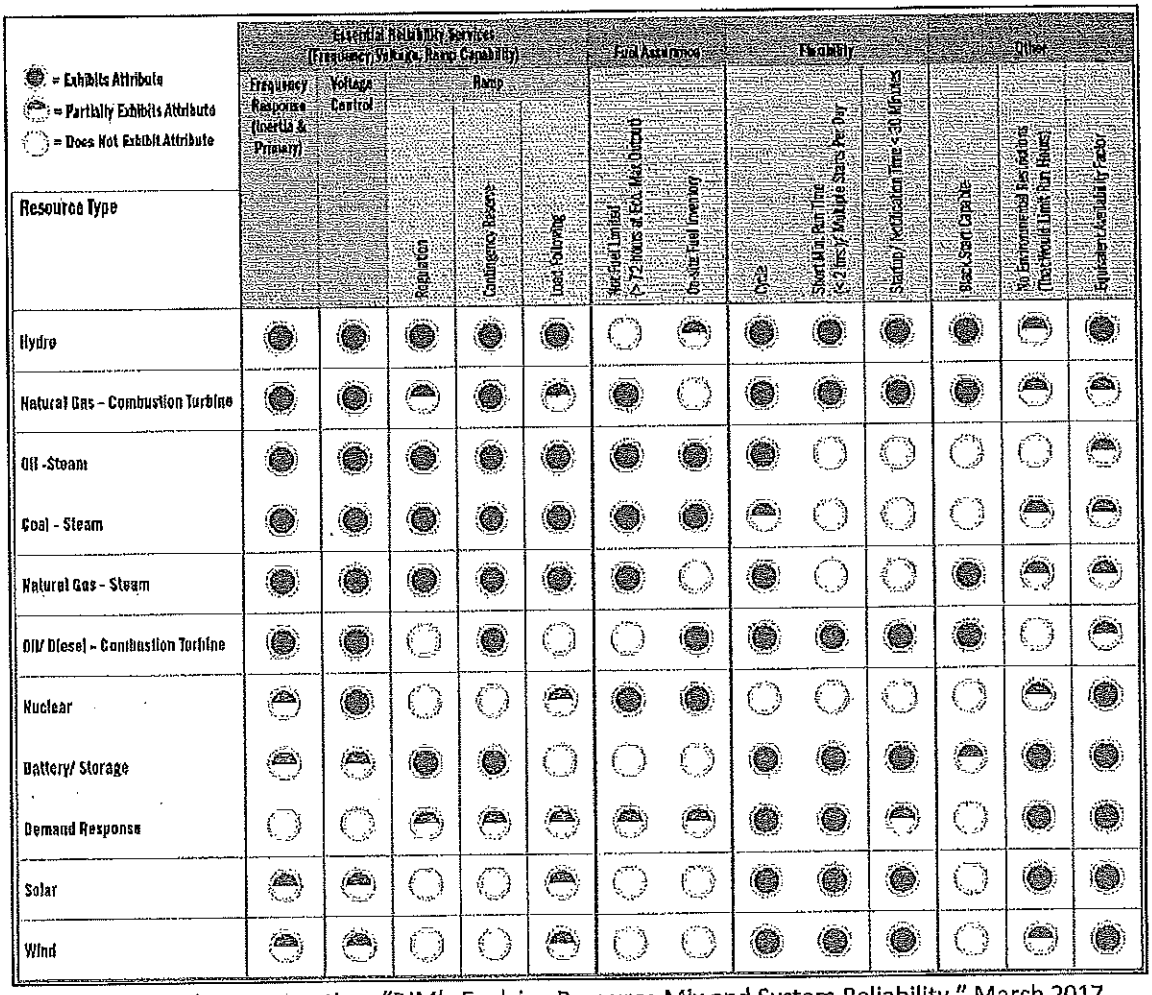
AMERICAN OVERSIGHT

- Contingency Reserves – Baseload plants are able to provide spinning reserves for backup power in case of system disruptions.
- Reactive Power – Baseload generators can supply reactive power to counteract fluctuations in voltage levels both on command and through Automatic Generation Control (AGC).
- Ramp Capability – Resources that can quickly increase or decrease their power output.
- Black Start Capability – Resources that can provide post-blackout electric connections to re-start the grid.
- Resource Availability – Ability to supply power on an uninterrupted basis for long periods of time.
- On-Site Fuel Supply – Minimizes potential for fuel supply chain disruptions.
- Reduced Exposure to Single Point of Disruption – Grid resources rely on external systems to ensure they operate reliably; coal benefits from on-site fuel stockpiles and multiple means of delivery.
- Stable, Predictable Pricing – Coal has traditionally had low and predictable variable fuel costs.

PJM analyzed 360 different portfolio mixes of electricity resources and their effect on electric reliability.[clxv] The portfolios represented different combinations of coal, natural gas, nuclear, wind, solar and other resources. Slightly more than one-quarter (1/4) of these (98) were "desirable," exhibiting high levels of reliability. Almost half (1/2) of the desirable portfolios consisted of 30%+ coal-fueled capacity. PJM also analyzed the effects of a polar vortex – one of several possible HILF events that could threaten electric grid resilience. Under assumed polar vortex conditions, only one third (1/3) of the desirable portfolios (34 of 98) were resilient – portfolios with coal at 30%+ remained resilient; due to "higher unavailability rates of natural gas under a polar vortex event" fewer portfolios with a higher percentage of natural gas were considered resilient. The conclusion is that PJM needs significant coal-fueled generating capacity to ensure a resilient grid, especially when encountering a HILF event.



AMERICAN OVERSIGHT




Source: PJM Interconnection, "PJM's Evolving Resource Mix and System Reliability," March 2017



AMERICAN OVERSIGHT

EXT-18-2615-G-000153

## APPENDIX 1C – Indirect Costs Associated with Intermittent Renewable Energy (IRE)

- Transmission is needed to move distant renewables to load centers (multi-billion dollar renewable-driven transmission projects are socialized across entire markets).
- Ancillary services that are necessary to "balance" non-dispatchables are not factored into renewable energy prices.
- Market distortions favoring IRE are discouraging investments in and driving retirements of other generation options with stranded costs of prematurely retired units being born by customers in regulated markets and utilities in deregulated markets.
- IREs increase the Levelized Cost of Electricity (LCOE) for conventional resources by reducing their utilization rates without reducing their fixed costs.[clxvi]
- Negative pricing, a consequence of production tax credits which occurs when the wholesale price of power is actually less than zero, is forcing generators to incur costs to stay online and generate power.
- Land use associated with IRE is significant – replacing a 400 MW coal power plant requires 4,350 acres of solar panels or 161,000 acres of non-coastal wind turbines.



AMERICAN OVERSIGHT

## APPENDIX 1D – Renewable Energy and Dispatch

The addition of renewable energy resources in any state or region will increase the need for and enhance the value of coal baseload plants because consumers require reliable power that is available at all times. It could even have the unintended consequence of increasing the value of some coal plants.[clxvii]

Consumer demand for 100% availability is accommodated by generating units supplying energy which matches the load shape forecast over a 24-hour period. Generating units are dispatched to match this 24-hour cycle, and additional operating (spinning) generation is held in reserve to meet unanticipated and anticipated unit interruptions or changes to the load forecast. The units supplying this energy are termed dispatchable and may be further categorized as:

- Base Load (called upon to operate 24 hours per day)
- Intermediate Load (which typically operate 8-10 hours per day)
- Peaking (called upon to operate a few hours per day, typically during peak periods)
- Operating Reserve (called upon either immediately or in a very short time frame to accommodate load which becomes un-served based on an operating unit coming off line very quickly or based on an unusual unscheduled demand for supply)

In order to operate, the system must constantly be in balance, with the supply of energy equal to the load. If there is too little supply, reserves are called on; if there is too much supply, generator output is reduced or curtailed. After the bilateral contracts are scheduled into the daily dispatch, the bids received from the generators are generally in a one-to-one correspondence with the costs to supply the energy, with the supply cost curve typically moving up in price from base load to peaking. Base and intermediate load generators are currently fueled primarily by coal and nuclear, and, increasingly in recent years, by natural gas. Peak power is typically fueled by natural gas.

Electric power from wind generators varies according to the cube of the wind speed impacting the turbine blades, but wind speeds vary dramatically over the course of a day, week, month, and year. Variations in wind power thus range from zero (no or very little wind blowing) to full nameplate capacity of the wind generators (during excessively high wind speeds, generators are shut down to avoid damage). Such on- again, off-again cycling of wind generators, as well as solar generators, is termed intermittent. Thus, the dispatching of wind turbines must accommodate intermittency, which is a significant system operational concern because consumers require reliable, always-available power-on-demand.[clxviii]

One consequence of intermittency is that wind power requires near 100% back-up by power plants that are reliable and dispatchable. Such backup plants must be capable of quickly ramping up or down to compensate for wind variations to provide power-on-demand to the consumer. Further, the backup plants must be maintained in a fully operational state at all times in order to be able to quickly respond to wind variations. The reserve called on to operate immediately to assure the changes to the supply/ demand requirements are in balance is called "spinning reserve."[clxix]



AMERICAN OVERSIGHT

Wind power is a growing percentage of total generation in many states. For example, in New York State, installed wind capacity increased from 279 GW in 2006 to 1,826 GW in 2016, and wind generation increased from 518 GWH in 2006 to 3,943 GWH in 2016.[clxx] However, wind's inherent nature-related variations must be accommodated by adjustments in on-line generators. As wind power is planned to grow significantly in many states, the backup power burden can no longer come from minor adjustments to dispatchable power plants. On this basis, the cost of large-scale wind generation must include not only the cost of the wind generators themselves but also the cost of dedicated dispatchable backup generation of a size which accommodates significant intermittent units operating on the system. The location of backup generators for wind power must be relatively close to the wind generators, otherwise large blocks of backup electric power would have to be shuttled over long distances over routes that at times are constrained and thus cannot accommodate such shuttling.

To reiterate, wind turbines do not generate electricity when the wind does not blow. However, few understand the degree to which these resources fail to operate when electric power is most urgently required. Production data on the U.S. power industry clearly illustrate that wind's intermittency requires significant generation resources to be operating on the electric system to assure reliable continuous supply, which can only be accommodated by generation of sufficient size and operating capability to furnish such backup.

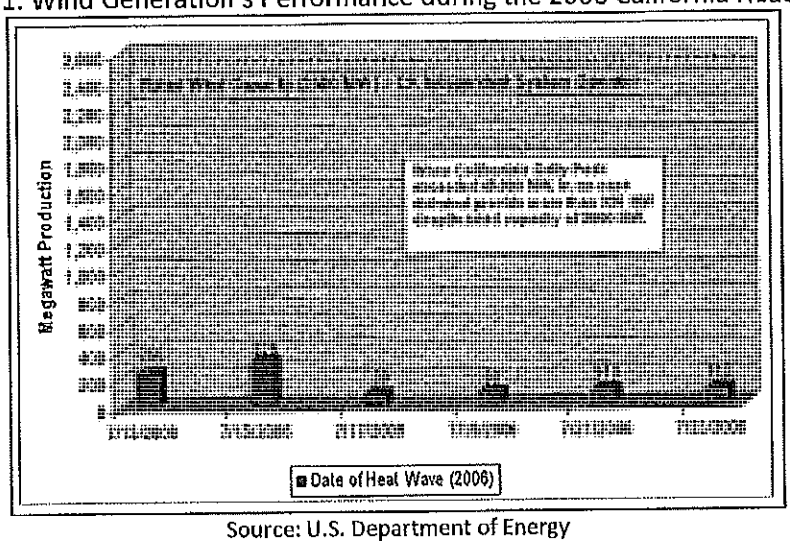
The U.S. Energy Information Administration (EIA) estimates average capacity factors for wind of about 33%, for solar thermal of about 22%, and for photovoltaics of about 25%.[clxxi] Other estimates of wind capacity factors are in the range of 20% to 30%, and could be even lower.[10] Given the time frame during the course of the daily load cycle during which peak loads occur, capacity factors for wind turbines are often much lower. For example, as shown in Figure 1, during the California heat wave in July 2006, which resulted in significant increases in electric demand, actual wind generation was at only about five percent of available name plate capacity. Thus, in this case, the capacity factor for wind was closer to five percent than 33% or even 20%. Balancing off such wind turbine availability is the availability of solar arrays during peak summer periods, but as is the case in the Northeast during periods of summer peak, solar arrays are also adversely impacted by thunder storm cloud cover.

[10] Centre for Sustainable Energy, "Common Concerns About Wind Power," June 2017. In addition, Hughes found that the normalised load factor for UK onshore wind farms declines from a peak of about 24% at age 1 to 15% at age 10 and 11% at age 15. He found that the decline in the normalised load factor for Danish onshore wind farms is slower but still significant, with a decline from a peak of 22% to 18% at age 15. Gordon Hughes, "Analysis of Wind Farm Performance in UK and Denmark, prepared for the Renewable Energy Foundation," December 2012. Similarly, Boccard noted "For two decades, the capacity factor of wind power measuring the mean energy delivered by wind turbines has been assumed at 35 percent of the nameplate capacity. Yet, the mean realized value for Europe over the last five years is closer to 21 percent thus making levelized cost 66 percent higher than previously thought." Nicolas Boccard, "Capacity Factor of Wind Power: Realized Values vs. Estimates," October 2008. The actual capacity factors for wind in Germany ranged between 14 and 21 percent over the period 2000 through 2007; see *Wind Energy Report Germany 2008*, ISET, Univ. Kassel, Germany, 2008.



AMERICAN OVERSIGHT

Figure 1. Wind Generation's Performance during the 2006 California Heat Wave




Source: U.S. Department of Energy

Similar availability issues have been encountered in Texas, which also has an aggressive wind power program. In 2008, the state installed nearly 2,700 MW of new wind capacity, and if Texas were an independent country, it would have then ranked sixth in the world in terms of total wind power production capacity. However, the Electric Reliability Council of Texas (ERCOT) analyzed the capacity factor of wind and estimated it to be less than nine percent. In a 2007 report, ERCOT determined that only "8.7 percent of the installed wind capability can be counted on as dependable capacity during the peak demand period for the next year." It went on to say "Conventional generation must be available to provide the remaining capacity needed to meet forecast load and reserve requirements." In 2009, ERCOT re-affirmed its decision to use the 8.7% capacity factor.[clxxii]

For non-coastal wind, ERCOT has measured a historical capacity factor of only 12% in summer months.[clxxiii] Analysis of Seasonal Assessment of Resource Adequacy (SARA) reports and historical data from the summers of 2012 through 2015 indicates that wind capacity utilization could be as low as 4.1%. This implies that total wind output across ERCOT could total only 679 MW on a peak summer day – when the power is most needed. ERCOT planners continued to estimate that that wind projects would provide less than 9% of their nameplate capacity towards meeting peak demand.[clxxiv] That estimate for Effective Load-Carrying Capability (ELCC) was based on the fact that wind production is not dependable and may be inversely correlated with demand, especially during hot summer days with little or no breeze.

A widely publicized report by the Texas Comptroller of Public Accounts found that little wind power is available in the summer months when Texans use the most power.[clxxv] The report highlighted the monumental failure of wind power to be available when it is required, stating "For summer 2014, even though Texas had more than 11,000 MW of total wind capacity, ERCOT counted on just 963 MW of wind generation being available. The lack of wind generation during summer peak demand means that energy planners, such as ERCOT, have to ensure that a lot of flexible natural gas generation is available to meet the reserve margin." Thus, as shown in Table 1, wind generation is lowest during the summer months when energy demand is the highest.



AMERICAN OVERSIGHT

Table 1. Comparison of Generation Ability in ERCOT

| GENERATION SOURCE | AVAILABILITY OF INSTALLED CAPACITY, 2013 | 2013 GENERATION (% OF TOTAL) | ELECTRICITY DELIVERED AT 2013 PEAK DEMAND |
|---|---|---|---|
| GAS (ALL TYPES) | 81%-89% | 41% | 59% |
| COAL (ALL TYPES) | 84%-86% | 37% | 29% |
| NUCLEAR | 85% | 12% | 7.5% |
| WIND | 8.7%* | 10% | 3.5% |

Note: *Because wind generation varies so much each day, wind percentage is reported as the effective load-carrying capacity used by ERCOT for forecasting purposes. Total available wind capacity was 11,066 MW as of May 1, 2014. Other resources were excluded from this comparison due to their limited capacity.

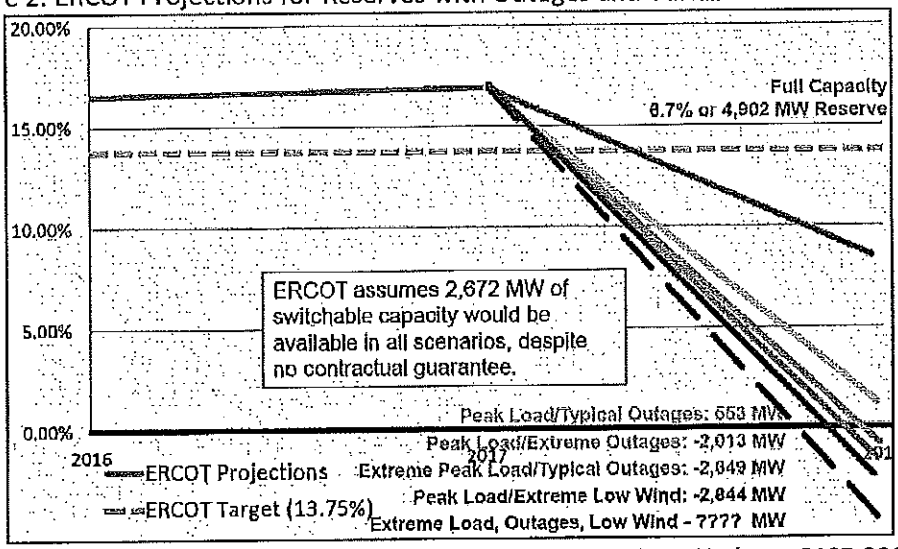
Source: Electric Reliability Council of Texas and Texas Reliability Entity.

More recently, Mike Nasi (Jackson Walker LLP) analyzed the Texas power market and found that:[clxxvi]

- Baseload coal has been a backbone of the Texas Success Story, but renewable subsidy market distortions are endangering the grid.
- The cost of transmission and ancillary services to build and "balance" renewables is socialized to entire market and masked by low natural gas prices.
- The more the grid is exposed to large "swings" when the wind stops blowing, the more blackouts and price spikes are a risk.
- Prolonged market distortions erode the economics of baseload, drive retirements, and discourage investments in new baseload (even gas).
- Basic realities of physics and energy density make renewables an inadequate replacement to baseload electricity from coal.

As shown in Figure 2, the near-term implications for Texas may be ominous.

Figure 2. ERCOT Projections for Reserves with Outages and Variable Wind Conditions




Sources: ERCOT, Capacity, Demand and Reserves Reports, Winter Updates, 2007-2017; Seas. Assess. of Res. Adeq., Mar. 2018.



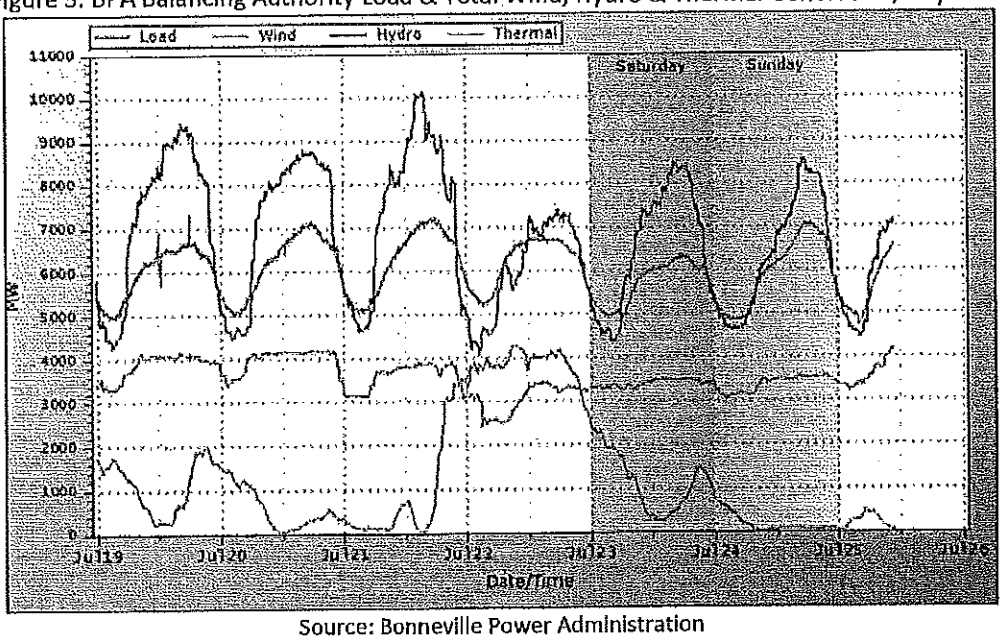
AMERICAN OVERSIGHT

Thus, despite massive investments and continuing subsidies, wind power has been providing only a small percent of Texas's total reliable generation of energy, and ERCOT's projections show that wind will continue to remain an insignificant player in terms of reliable capacity. Accordingly, Texas will continue to rely almost entirely on natural gas, coal, and nuclear power to generate electricity.

The experience of the Pacific Northwest, another region with an aggressive wind program, is similar. Often when it is very hot or very cold and electric power demand is greatest, wind generation is simply not available. For example, during the cold days of January 5 to 28, 2009 wind generation in the region was virtually non-existent.[clxxvii] Another example of wind generation variability took place on October 16, 2012 when wind generation on the Bonneville Power Administration system was producing 4,300 MW, accounting for 85 percent of total generation in the pre-dawn hours. The next day, wind generation was practically non-existent, falling to almost zero.[clxxviii]

Similarly, an extreme 2016 heat in Washington State illustrated the reliability problems with wind power.[clxxix] Figure 3 illustrates that during the heat wave, nuclear power (the largest proportion of the thermal curve shown) provided power continuously at a capacity factor of 98% and hydro was used to load-follow. Wind blew occasionally, and mostly when it was not needed. Most of the electricity needed to combat this heat wave was concentrated during peak hours of the afternoon when the wind turbines were not turning.

Figure 3. BPA Balancing Authority Load & Total Wind, Hydro & Thermal Generation, July 2016




Source: Bonneville Power Administration

Analysis of almost four years of generation data in ERCOT with over 10,000 MW of wind capacity, the Midwest ISO (MISO) with almost 12,000 MW of wind capacity, and the PJM Interconnection (PJM) with over 5,000 MW of wind capacity, found that:[clxxx]

- In all three regions, over 84% of the installed wind generation failed to produce electricity when electric demand was greatest.



AMERICAN OVERSIGHT

- In MISO, only between 1.8% and 7.6% of wind capacity was available and generating power during the peak hours on the highest demand days.
- In ERCOT, only between 6.0% and 15.9% of wind facilities generated power during peak summer periods.
- In PJM, the range was between 8.2% and 14.6% during peaks.
- These availability values are significantly lower than median availability for the entire period.

The July 2012 heat wave in Illinois, where temperatures reached 103 degrees in Chicago, provides another example of wind generation's limitations to perform when needed most. During this heat wave, Illinois wind units generated less than five percent of nameplate capacity, producing only an average of 120 MW of electricity from over 2,700 MW installed. On July 6, 2012, when the demand for electricity in northern Illinois and Chicago averaged 22,000 MW, the average amount of wind power available during the day was virtually nonexistent at 4 MW.[clxxxi]

More generally, the greatest amounts of wind generation occur in the spring and fall, when the demand for electricity is lowest, and the smallest amounts of wind generation occur in summer, when the demand for electricity is the greatest. Wind generation data in PJM, the nation's largest independent system operator, show that the "load–wind gap" (the difference between summer electric demand and summer wind availability, relative to respective annual averages) was almost 70% in the summers of 2010 and 2011. In summer 2012, the load–wind gap was 59%.[clxxxii]

Thus, "While renewable energy sources have made many advances in recent years, they are not widespread enough to be able to support an electrical grid as a base load. Renewable energy is intermittent, unreliable, requires back-up, is non-dispatchable, and not is available during emergencies."[clxxxiii]

The New York State wind experience is similar to that in other regions and indicates the need for baseload facilities to back-up renewable generation intermittency. For example, an analysis of 16 wind projects in New York State between 2008 and 2011 found that, despite vendor promises prior to installation of capacity factors of 30% to 35%, average annual capacity factors ranged between 14.1% and 22.7%.[clxxxiv]

Researchers also analyzed four New York State wind projects since their inception in a comprehensive study centered on the Noble Chateaugay project, which has 71 GE 1.5 SLE turbines and is capacity-rated at 106.5 megawatts.[clxxxv] Their research determined that the actual annual output of the Chateaugay project was only 23 megawatts, giving it a capacity factor of 21.6%. The other northern New York projects had similar capacity factors. The researchers noted that this is substantially less than the 30% to 35% commonly predicted by wind developers. They also found that all northern New York wind projects had more than 1,200 hours annually that produced no electricity at all -- the equivalent of 50 24-hour days, or 14% of the time, with zero generation. Thus "It appears wind developers notoriously inflate expected capacity factors to entice investors and increase chances of permitting approvals." Further, "Both Vesta and GE turbines have a manufacturer's life expectancy rating of 20 years, yet no northern New York wind project is on track to sell enough electricity in 20 years to pay for itself."[clxxxvi]



AMERICAN OVERSIGHT

All New York generating units, both renewable and non-renewable, have an "unforced capacity value" (UCAP) for purposes of the capacity markets, which is used for reliability planning and which load serving entities such as the state's electric utilities purchase to assure that installed generating reserve is available to serve customer load during peak periods.[clxxxvii] This UCAP value is a percentage of a resource's nameplate MW value; for wind and solar this number is based on an initial NYISO designated rating for Year 1 of operation and on actual historical energy output for every year thereafter. The values are facility specific, but the UCAP for onshore wind in NY is 10-14% for the summer peak – when electricity is needed the most and electricity prices are the highest.[clxxxviii]

This unforced capacity value is not unique to New York State, or even to the U.S. Similar unforced capacity values are the case in the Netherlands, Denmark, England, Germany, Spain, Portugal, and Ireland, or anywhere that large scale wind generation is part of the installed generation mix.[clxxxix] An Australian study found that even wind farms spread over large, widely dispersed areas and interconnected into a single electric system cannot produce electricity with capacity factors close to name plate capacity.[cxc]

Further, the performance and capacity factors of wind turbines deteriorate over time. A seminal study analyzed the rate of ageing of a national fleet of wind turbines using public data for the actual and theoretical ideal load factors from the UK's 282 wind farms.[cxci] It found that:

- Load factors declined with age, at a rate similar to that of other rotating machinery.
- Onshore wind farm output declines 16% a decade.
- Performance declines with age occurred in all farms and all generations of turbines.
- Decreasing output over a farm's life increased the levelized cost of electricity.

The study determined that this degradation was consistent for different vintages of turbines and for individual wind farms, ranging from those built in the early 1990s to early 2010s.[cxcii]

The Renewable Energy Foundation, an organization that advocates in favor of renewable energy facilities, also conducted a comprehensive study of the available capacity factors over time for wind turbines in the UK and came to similar findings. Using monthly observations for 282 onshore installations in the UK with an age range of zero to 19 years, it found "the normalized load factor for UK onshore wind farms declines from a peak of about 24% at age one to 15% at age 10% and 11% at age 15."[cxciii] In other words, the capacity factors for wind generators decline significantly every year after installation.

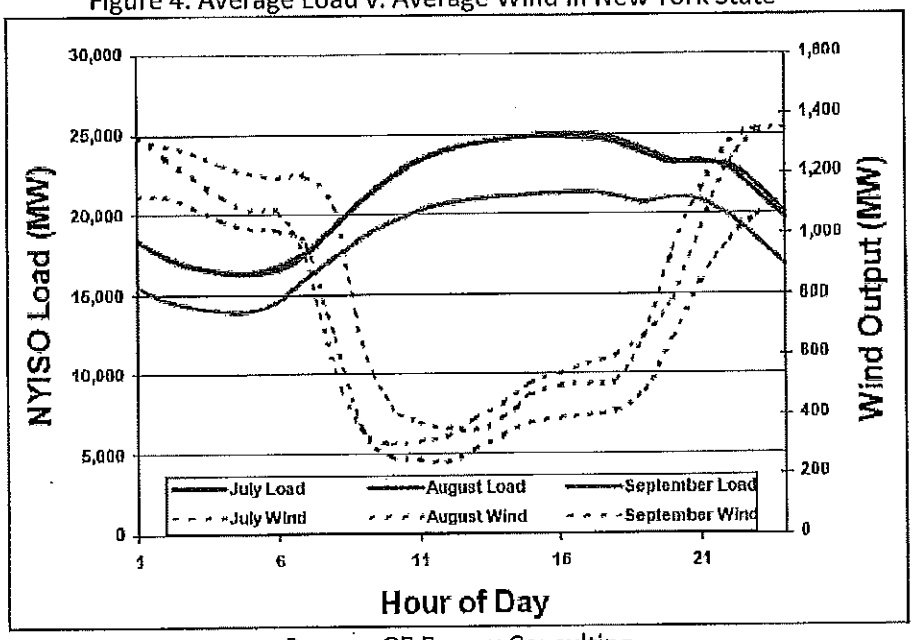
State renewable portfolio standards contributed to more than half of all renewable electricity growth in the U.S. since 2000.[cxciv] Expanding the supply of electricity from renewable resources and enhancing energy efficiency are among the longstanding goals of many states. In addition, many states have established extremely ambitious renewable energy goals.

However, wind generation, for example, presents serious challenges to system operators due to the variability of output and to the fact that wind energy production tends to increase much later in the day, when power use is declining, and to decline in the morning when power use is building. Figure 4 demonstrates this for New York State. In addition, wind projects in New York are predominantly being developed in the northern and western portions of the state, based on available wind resources situated almost exclusively in this region, while the population centers of southeastern New York are the regions with the highest demand for electric supply.[cxcv] This presents a dispatch encumbrance for the future of NY electric markets because most of the proposed new electric generation in NY consists of renewables.[cxcvi]



AMERICAN OVERSIGHT

Figure 4. Average Load v. Average Wind in New York State




Source: GE Energy Consulting

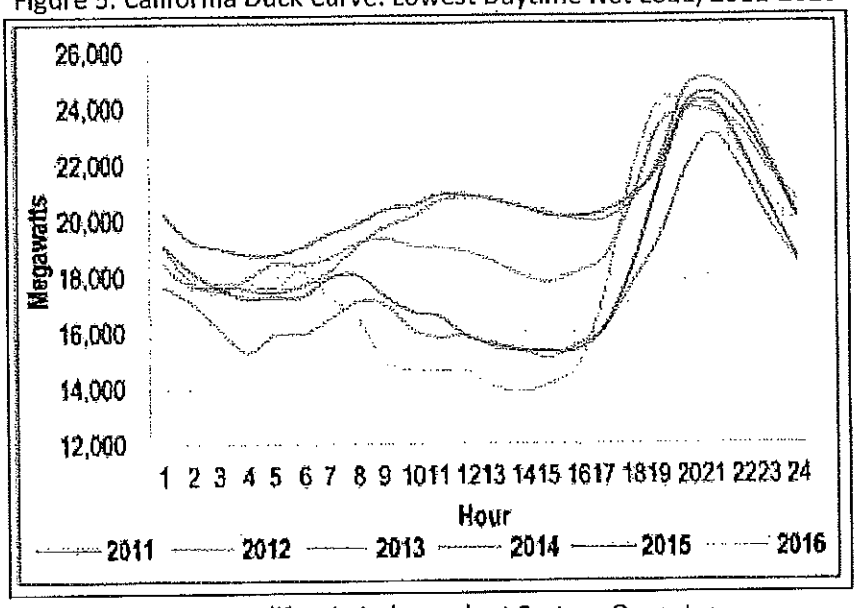
Solar energy is also ill-suited to supplying reliable electric power when it is needed. The duck curve -- named after its resemblance to a duck – shows the difference in electricity demand and the amount of available solar energy throughout the day. When the sun is shining, solar floods the market and then declines rapidly off as electricity demand peaks in the evening. The duck curve in Figure 5 is a snapshot of a 24-hour period in California during springtime – when this effect is most extreme because it is sunny but temperatures remain cool, so demand for electricity is low since people aren't using electricity for air conditioning or heating.

In commercial-scale electricity generation, the duck curve is a graph of power production over the course of a day that shows the timing imbalance between peak demand and renewable energy production. In many energy markets the peak demand occurs after sunset, when solar power is no longer available. In locations where a substantial amount of renewable electric capacity has been installed, the amount of power that must be generated from sources other than solar or wind displays a rapid increase around sunset and peaks in the mid-evening hours, producing a graph that resembles the silhouette of a duck.[cxcvii] The most pertinent example is currently in California, as illustrated in Figure 5. This shows that the problem has become significantly worse in recent years as California has mandated increasing amounts of renewable energy and should serve as a warning to other states as they pursue ambitious renewable energy goals.



AMERICAN OVERSIGHT

Figure 5. California Duck Curve: Lowest Daytime Net Load, 2011-2016




Source: California Independent System Operator

In sum, numerous studies indicate that baseload facilities, which provide backup for intermittent power, can provide increasingly valuable system support which increases in importance every year as more wind facilities are installed. As renewable energy generation increases as a percentage of U.S. generation capacity mix over the coming decades, the more necessary sources of non-intermittent generation from baseload facilities will become. The planning processes in many states currently rely on renewables as a major generation source.[cxcviii] Replacement of baseload non-intermittent generation with intermittent renewable capacity will require generation from reliable sources to be available and to be on-line more frequently. This will make them all that more valuable. Further, since the performance and capacity factors of wind turbines deteriorate over time – starting at the year of installation, the need for and the value of more reliable power sources will increase every year.



AMERICAN OVERSIGHT

## APPENDIX 1E – Highlights of NERC Testimony on the Performance of the Electric Power System Under Certain Weather Conditions

U.S. Senate Energy & Natural Resources Committee, January 23, 2018

Testimony of Charles A. Berardesco, Interim President & CEO, North American Electric Reliability Council (NERC)

https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=D982B4F9-ECAF-403B-88BA-C82D2634E2DA

"In its long-term reliability assessments, NERC identifies how reliance on a single fuel increases vulnerabilities, particularly during extreme weather conditions. Against a backdrop of low natural gas prices and policies that promote increased natural gas generation, regions of the country have significantly increased dependence on natural gas over the past decade. Four of NERC's assessment areas now meet their peak electric demand with greater than 50% of that sourced from natural gas-fired generation.

NERC's 2017/2018 Winter Reliability Assessment observes an increasing trend since 2012 of natural gas-fired generation outages during winter months. These historical outages that resulted from fuel unavailability during the winter months underscore the need for fuel assurance and operational readiness during periods when reliance on natural gas can be critical.

During the extreme cold, a diverse generation mix with adequate flexible fuel resources and back-up fuel was key to meeting increased electricity demand. All forms of generation contributed to serving load ... Accordingly, NERC recommends policymakers and regulators should consider measures promoting fuel diversity and supplemental fuel sources as they evaluate electric system plans, consistent with policy objectives."



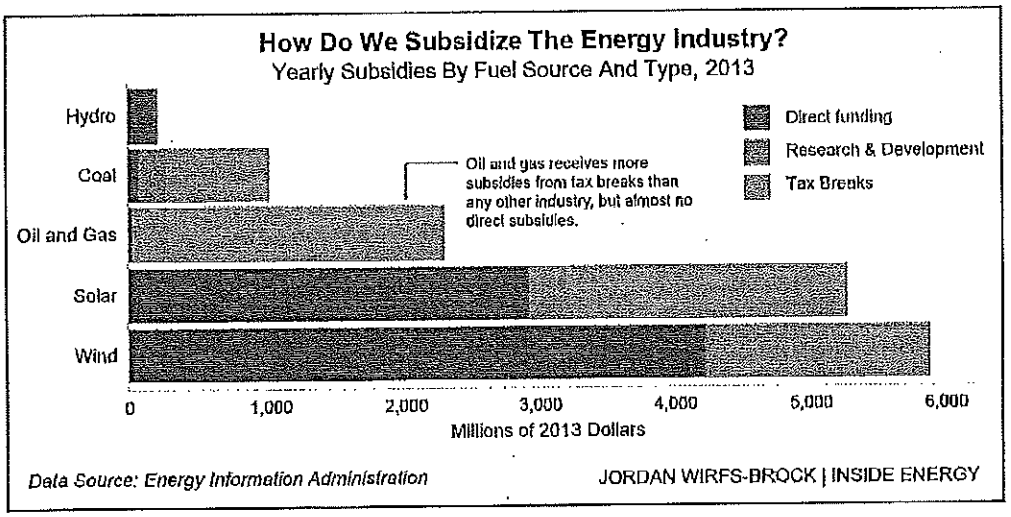
AMERICAN OVERSIGHT

## APPENDIX 1F – Perspectives on Energy Subsidies

Environmental regulations, subsidies and policy mandates contribute to the cost of electric generation and skew the playing field for deployment of energy resources. Renewables, which are subsidized to a larger degree than other sources of energy, have benefited for years from tax credits, direct funding, and research and development support funding. This level of support has put other energy resources at a market disadvantage, fostering the need for corrective, compensatory measures that will facilitate parity.

Among the key findings in an April 2018 report[11] by the Energy Information Administration (EIA) is that "Most current federal subsidies support developing renewable energy supplies (primarily biofuels, wind, and solar) and reducing energy consumption through energy efficiency. In FY 2016, nearly half (45%) of federal energy subsidies were associated with renewable energy, and 42% were associated with energy end uses." The report documents that between 2010 and 2016, renewable energy's share of energy-specific subsidies and support increased from 42% to 45%; coal's share for the same period increased from 2% to 8%. Analysis by other entities for prior years documents similar findings.

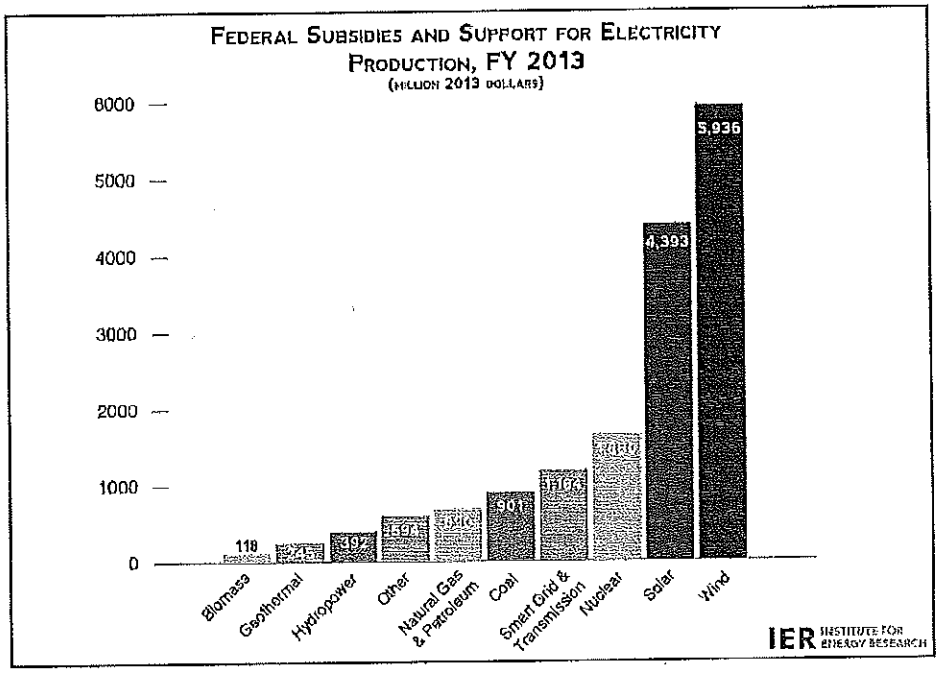
In addition to the market disadvantages imposed by such distortions, tilted playing field has curtailed investment in advanced technologies capable of furthering environmental objectives associated with all energy resources. Inequitable mandates, subsidies and policies have contributed to increased electric prices by forcing the early retirement of power plants, leaving valuable stranded assets that can only be compensated for through increased consumer prices.




[11] EIA, "Direct Federal Financial Interventions and Subsidies in Energy in Fiscal Year 2016," April 2018, https://www.eia.gov/analysis/requests/subsidy/pdf/subsidy.pdf



AMERICAN OVERSIGHT




| Beneficiary | Direct Expenditures | Tax Expenditures | Research and Development | Federal and RUS Electricity | Total | Share of Total Subsidies and Support |
|---|---|---|---|---|---|---|
| Coal | 61 | 642 | 167 | 30 | 901 | 6% |
| Natural Gas and Petroleum Liquids | 18 | 662 | 10 | | 690 | 4% |
| Nuclear | 37 | 1,109 | 406 | 109 | 1660 | 10% |
| Renewables | 7,408 | 3,373 | 722 | 176 | 11678 | 72% |
| Biomass | 62 | 9 | 47 | - | 118 | 1% |
| Geothermal | 221 | 22 | 2 | - | 245 | 2% |
| Hydropower | 194 | 17 | 10 | 171 | 392 | 2% |
| Solar | 2,448 | 1,712 | 234 | - | 4393 | 27% |
| Wind | 4,274 | 1,614 | 49 | - | 5936 | 37% |
| Other | 209 | - | 380 | 5 | 594 | 4% |
| Subtotal Renewables Electric | 7,408 | 3,373 | 722 | 176 | 11678 | 72% |
| Electricity - Smart Grid and Transmission | 8 | 211 | 831 | 134 | 1184 | 7% |
| Total | 7,532 | 5,996 | 2,136 | 449 | 16112 | 100% |

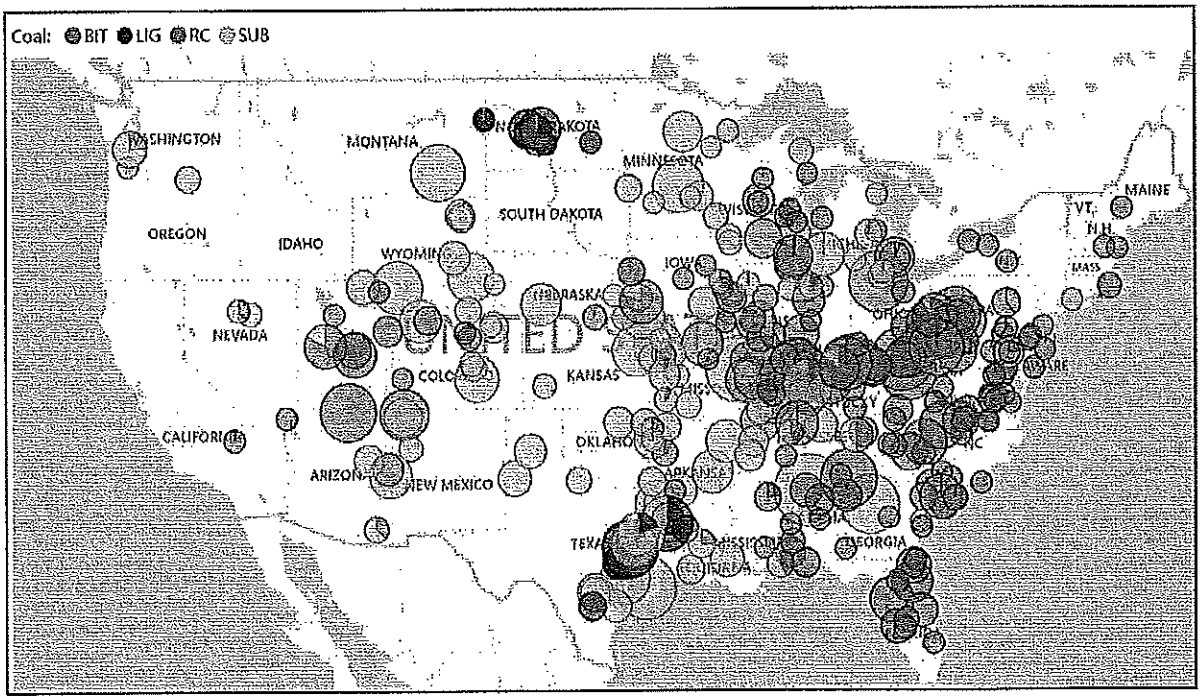
Source: DOE Grid Study: Fiscal Year 2013 Electricity Production Subsidies and Support



AMERICAN OVERSIGHT

## APPENDIX 1G – U.S. Coal-fired Power Plants Location, Coal Type and Generation (MW)

The location and size of coal-fired power plants in the contiguous U.S. is shown below. The largest density of plants and generating capacity is in the eastern half of the country, with the exception of the New England states. The type of coal-fired plant typically varies by region, with a higher density of bituminous-fired plants in the east and southeast with the exception of several units firing local bituminous coals in the west. Most of the subbituminous coal is shipped by rail from the Powder River Basin in Montana-Wyoming to plants in the mid-west and west. Lignite plants are typically located near lignite mines in the Gulf region and in North Dakota.




Location, coal type, and relative electricity generation (MWhr) for coal-fired plants in contiguous U.S. RC = plants reporting using refined coal.
Source: U.S. EIA Forms EIA-860 and EIA-923 data



AMERICAN OVERSIGHT

## APPENDIX 1H – Environmental Regulations Impacting Coal Generation

| Regulation | Federal Register Publication | Implementation Period | Provision Highlights | Potential and Realized Impacts |
|---|---|---|---|---|
| Cooling water intake rule (316b) under the Clean Water Act (CWA) | Phase 1 – 2001 rev., 2003, Phase 2 – 2014 | Phase II 2014 - 2018 | Requires controls to reduce mortality to fish and aquatic organisms | Upgrades to cooling water intake structures to reduce and elimination of once through cooling through use cooling towers |
| Cross-State Air Pollution Rule under the Clean Air Act (CAA) | 2011 | Phase 1 – 2015 and Phase 2 - 2016 | Requires states to reduce emission of SO2 and NOx. | Requires new or upgrades to emission control equipment such as FGD scrubber systems and SCR catalyst systems. |
| Steam Electric Effluent Limitations Guidelines, CWA, 40 CFR 423 | Initially in 1974 with the last publication in 2015 | 2015 update is stayed while EPA reviews Rule | Establishes limitation on the discharge of chemical pollutants and thermal discharges from steam electric power plants. The 2015 update sets federal limits on levels of metals that can be discharged | No wet sluicing of bottom or fly ash to ash ponds. New limits of metals can only be achieved with new technology of a combination of physical chemical systems. The EPA estimated annual, industry-wide cost for power plants to comply would be $480 million. The actual cost is significantly different from site to site. |
| New Source Review (CAA) | 1980 initially with last update in 2002 | 2002 updates under court challenge | Requires new or modified power plant upgrades most obtain a pre-construction permit to ensure modern emission control equipment is installed. New Source Performance Standards (NSPS) makes it nearly impossible to retrofit existing facilities because rules stipulated plants can emit no more than 1,400 pounds of CO2 per megawatt hour of electricity generated. A standard coal plants can't meet without carbon capture and storage. | Requires new or modified power plant upgrades most obtain a pre-construction permit to ensure modern emission control equipment is installed. New Source Performance Uncertainty stemming from NSR process has led to a lack of investment in efficiency upgrades which would have led to more efficient power generation and reduced environmental impacts. |



AMERICAN OVERSIGHT

EXT-18-2615-G-000168

| | | | | |
|---|---|---|---|---|
| Mercury and Air Toxics Standards (CAA) | 2012 | 2015 and for some units qualifying for a 1 year extension to 2016 | Establishes emission limits for mercury, arsenic, acid gases, and other toxic pollutants | Implementation of a combination of control technology such as FGD scrubber systems, Selective Catalytic Reduction (SCR) systems, fuel additives, and/or activated carbon injection systems. "Of the 87 GW of coal capacity that installed pollution control equipment to comply with MATS, activated carbon injection (ACI) was the dominant compliance strategy. More than 73 GW of coal-fired capacity installed ACI systems in 2015 and 2016, effectively doubling the amount of coal capacity with ACI." At least $6.1 billion was invested from 2014-2016 to comply with MATS or other environmental regulations.[cxcix] |
| Coal Combustion Residuals Rule under Resource Conservation and Recovery Act (RCRA) | 2015 | 2015 - 2018 | New regulations on the disposal of coal combustion residuals (CCRs) by electric facilities. Rules establish national standards for disposal. Address dike and pond stability requirements. Addresses groundwater contamination risks from coal combustion residuals (CCRs) disposal in landfills and ponds by establishing national standards for disposal | Triggers landfill and pond closures if stability and locations standards and groundwater standards are not met. Retiring a coal-fired unit after the effective date of the Rule isn't a compliance option so this Rule alone doesn't trigger retirements. Enforcement was through citizen enforcement (the threat of lawsuits) until passage of the WIIN Act. The reporting burden and threat of lawsuits is one more consideration that weighs in favor of closures of coal fired plants. If closure occurred prior |



AMERICAN OVERSIGHT

| | | | | |
|---|---|---|---|---|
| | | | | to effective date of Rule, the Rule wasn't applicable. |
| Regional Haze Rule under CAA | 1999 with policy revisions in 2017 | Revised state plans due in 2021 | Requires states to develop long-term strategies and enforceable measures to improve visibility in 156 national parks and wilderness areas. Aims to return visibility to natural conditions by 2064. | Uncertainty about implementation impacts power plant compliance and retirement planning. |
| Carbon Pollution Standards and Clean Power Plan (CPP) under CAA | 2015 | Under EPA review and is currently stayed (Feb 2017, U.S. Supreme Court decision put the initiate on hold. October 2017 a Notice of Proposed Rulemaking was issued to repeal the CPP. | Establishes CO2 emission standards for new and existing power plants | The never implemented CPP was still damaging because the prospects of compliance triggered retirements because coal emits roughly twice the carbon as natural gas electricity generators. Even the prospect of compliance weighed heavily with decision makers |



AMERICAN OVERSIGHT

AMERICA'S POWER

ACCCE | Reliable • Secure • Resilient • Affordable

## RETIREMENT OF COAL-FIRED ELECTRIC GENERATING UNITS[12]

***As of August 12, 2018***

### All Retirements

Since 2010, power plant owners have announced either the retirement or conversion to other fuels of a large number of coal-fired electric generating units.[13] The table on the following pages summarizes all publicly announced retirements through 2030. The table shows that 630 coal-fired generating units in 43 states — totaling over 115,000 megawatts (MW) of generating capacity — have retired or announced plans to retire. These retirements are approaching 40% of the U.S. coal fleet that was operating in 2010. Through 2017, approximately 68,000 MW of coal-fired generating capacity have retired. For 2018-2020, an additional 25,000 MW are expected to retire, bringing total retirements to 93,000 MW by the end of 2020.

### EPA-Attributed Retirements

The table also includes retirements that have been explicitly attributed to EPA regulations and policies. These EPA-caused retirements total 463 units and represent almost 77,000 MW of coal-fired generating capacity. Of the total, 58,000 MW have already retired.

### ISO/RTO Retirements

Over 50,700 MW of coal-fired generating capacity in ISO/RTO regions have retired. An additional 5,400 MW in these regions are slated to retire over the remainder of 2018-2020, of which 3,100 MW have been attributed to wholesale electricity market conditions. The regions with the most retirements through 2020 are PJM (32,400 MW), MISO (14,700 MW), ERCOT (5,100 MW) and SPP (5,100 MW).

---

[12] Retirements and conversions are based primarily on public announcements by the owners of the coal units. We also use other information sources that are reliable. These retirements and conversions are *not* based on modeling projections. We do not include small (less than 25 MW) cogeneration units. Since most of these units are retiring, not converting to another fuel, we use the term "retirements" in this paper to characterize units that may be *either* retiring or converting.

[13] In 2010, according to EIA, the U.S. coal fleet was comprised of 1,396 electric generating units located at 580 power plants for a total electric generating capacity of approximately 317,000 MW.



AMERICAN OVERSIGHT

| | MW RETIRING | UNITS RETIRING |
|---|---|---|
| 1. Ohio | 12,131[14] / 6,421[15] | 59 / 40 |
| 2. Indiana | 6,569 / 6,129 | 39 / 34 |
| 3. Pennsylvania | 5,847 / 5,548 | 34 / 30 |
| 4. Texas | 5,672 / 1,399 | 10 / 3 |
| 5. Illinois | 5,663 / 3,076 | 21 / 14 |
| 6. Alabama | 5,166 / 5,166 | 26 / 26 |
| 7. Michigan | 4,911 / 4,075 | 44 / 31 |
| 8. Florida | 4,752 / 1,568 | 14 / 7 |
| 9. North Carolina | 4,615 / 2,783 | 37 / 20 |
| 10. Kentucky | 4,168 / 3,743 | 20 / 18 |
| 11. West Virginia | 4,040 / 2,740 | 20 / 18 |
| 12. Georgia | 3,752 / 3,249 | 17 / 15 |
| 13. Arizona | 3,482 / 3,482 | 8 / 8 |
| 14. Virginia | 3,258 / 2,354 | 29 / 16 |
| 15. Wisconsin | 2,928 / 1,287 | 27 / 16 |
| 16. Nevada | 2,689 / 0 | 8 / 0 |
| 17. Tennessee | 2,659 / 2,659 | 17 /17 |
| 18. Oklahoma | 2,414 / 2,414 | 5 / 5 |
| 19. Colorado | 2,405 / 1,776 | 19 / 16 |
| 20. Missouri | 2,372 / 2,355 | 24 / 23 |
| 21. Minnesota | 2,288 / 2,150 | 17 / 15 |
| 22. Montana | 2,248 / 154 | 5 / 1 |
| 23. New Mexico | 2,222 / 2,222 | 7 / 7 |
| 24. Utah | 2,072 / 272 | 7 / 5 |
| 25. Iowa | 1,847 / 1,579 | 33 / 29 |
| 26. South Carolina | 1,768 / 1,768 | 14 / 14 |
| 27. New York | 1,708 / 475 | 14 / 3 |

[14] Total coal retirements.
[15] Coal retirements attributed to EPA regulations and policies.



AMERICAN OVERSIGHT

| | | |
|---|---|---|
| 28. Massachusetts | 1,663 / 1,408 | 8 / 6 |
| 29. Arkansas | 1,659 / 1,659 | 2 / 2 |
| 30. New Jersey | 1,543 / 268 | 6 / 2 |
| 31. Washington | 1,376 / 0 | 2 / 0 |
| 32. Nebraska | 757 / 637 | 6 / 5 |
| 33. Mississippi | 706 / 706 | 2 / 2 |
| 34. Maryland | 635 / 115 | 5 / 2 |
| 35. Oregon | 585 / 585 | 1 / 1 |
| 36. Louisiana | 575 / 575 | 1 / 1 |
| 37. Connecticut | 566 / 0 | 2 / 0 |
| 38. Kansas | 550 / 478 | 7 / 6 |
| 39. Delaware | 360 / 0 | 4 / 0 |
| 40. North Dakota | 189 / 0 | 1 / 0 |
| 41. California | 129 / 0 | 3 / 0 |
| 42. Wyoming | 49 / 49 | 4 / 4 |
| 43. South Dakota | 22 / 22 | 1 / 1 |
| **43 / 37 States** | **115,010 / 77,346 MW** | **630 / 463 Units** |



AMERICAN OVERSIGHT

# Appendix 2B – Coal Combustion Residuals Rule

Summary

The Coal Combustion Residuals (CCR) rule imposes high costs on certain disposal sites. The rule may drive units to retire as the compliance costs become prohibitive, adding to the cost of generation, or their disposal facility is forced to close, and the alternatives are too expensive. A detailed discussion of the rule's impacts on coal plants and associated costs are presented here.

## Background

EPA promulgated the current regulation governing the management of Coal Combustion Residuals CCR Rule at power plants on April 17, 2015 ("the 2015 CCR Rule"). The 2015 CCR Rule established national minimum criteria for existing and new CCR landfills and surface impoundments. The minimum national standards include location restrictions; design and operating criteria; groundwater monitoring and corrective action; closure requirements and post closure care; and recordkeeping, notification and Internet posting requirements. The 2015 CCR Rule, promulgated under RCRA 1008(a), 4004(a) and 4005(a), did not require facilities to obtain a federal or state permit, nor did it establish any requirements on states or state programs. EPA took the position that it did not have the authority under RCRA to require or recognize state permits (or other systems of prior authorization) and, as a result, the 2015 CCR Rule is strictly a self-implementing program, enforceable solely through RCRA citizen suits.

In December 2016, the Water Infrastructure Improvements for the Nation (WIIN) Act was enacted, establishing new statutory provisions applicable to CCR units. The WIIN Act authorized states to implement the CCR Rule through an EPA-approved permit program; and also authorized EPA to enforce the rule and in certain situations to serve as the permitting authority. Accordingly, states may submit a program to EPA for approval and authorizations or permits issued pursuant to the approved state program operate in lieu of the federal requirements. To be approved, a state program must require each CCR unit to achieve compliance with the federal regulations, or alternative state criteria that EPA has determined are "at least as protective" as the Federal regulations. Facilities are to continue to comply with the CCR Rule, however, until a state program is in effect for the regulation of the CCR units.

## CCR Rule Provisions that Could Drive Retirements

The two most significant potential coal plant retirement drivers in the CCR Rule are: (1) location restrictions applicable in varying degrees to all CCR units and (2) retrofit/closure requirements applicable to "unlined" CCR surface impoundments.

*Location Restrictions.* The 2015 CCR rule contains five location restrictions that apply to new CCR units and selectively to existing CCR units. These restrictions include: (1) disposal within five feet of the uppermost aquifer; (2) disposal in wetlands; (3) disposal in unstable areas, including karst areas; (4) disposal near active fault zones; and (5) disposal in seismic impact zones. In addition, the current subtitle D regulation (40 CFR 257.3-1) that applied to these units before the final rule was issued, already restricts facilities that dispose of wastes in floodplains. For fault areas, seismic impact zones, and unstable areas (using karst areas as a proxy) the EPA's



AMERICAN OVERSIGHT

Regulatory Impact Analysis (RIA) projected that 51 of the 1045 waste management units would be subject to the location restrictions resulting in an estimated 26 waste management units closing as a result. The remaining waste management units are expected to make certifications either that they are not subject to these three location restrictions or that their continued operation in these areas is protective.

*Surface Impoundment Retrofit/Closure Requirements.* The 2015 CCR Rule establishes a robust groundwater monitoring and corrective action program. Under the Rule, by January 15, 2018 owners/operators were required to complete a statistical evaluation to determine if data from wells downgradient of the CCR unit demonstrate that there is a statistically significant increase over background levels. The constituents that are of relevance at this stage of the evaluation are referred to as "Appendix III constituents." If a statistically significant exceedance of an Appendix III constituent requires a facility to proceed to "assessment monitoring."

At this stage, a different set of constituents, referred to as "Appendix IV constituents," are evaluated. Sampling and resampling of wells occurs through October 2018, and a statistical evaluation needs to be completed by January 2019. If statistically significant increases are observed, then different paths are taken depending on whether the exceedance is observed at CCR landfill versus a CCR surface impoundment and whether the relevant surface impoundment is deemed "lined" versus "unlined." The 2015 CCR Rule required owners and operators of a CCR surface impoundment to document whether or not each CCR surface impoundment was constructed with the liner requirements of the rule no later than October 17, 2016. 40 CFR 257.71(a)(1). The documentation required certification by a professional engineer (PE).

An existing CCR surface impoundment is considered to be an unlined unit if compliance with the liner requirements cannot be documented. 40 CFR 257.71(a)(3). Under the Phase I CCR rule changes currently proposed by EPA, state agency officials could be empowered to make liner determinations in the absence of a PE certification, which could prove significant for older units that might lack the documentation necessary for a PE to be able to certify what the state agency might have previously concluded.

The designation of a CCR surface impoundment as "unlined" is critical insofar as unlined CCR surface impoundments will have to be discontinued to be used and ultimately closed if certain groundwater conditions are observed, whereas if the same groundwater conditions are observed in relation to a CCR landfill or lined surface impoundment, such units will not have to close as a result of those conditions but will have to take corrective action measures to address the groundwater contamination.

The timeline for discontinued use and ultimate closure of unlined units can vary depending on the closure path that is chosen, but the default rule is that an owner/operator of an unlined CCR surface impoundment must cease to place CCR and non-CCR waste within 6 months of making a determination that a constituent listed in Appendix IV is detected at statistically significant levels above the established groundwater protection standard. This could occur as early as July 2019. This timeline can, however, be extended if an alternative closure path is allowed because the owner/operator can certify that CCR must continue to be managed in the CCR unit due to the absence of both on-site and off-site alternative disposal capacity or that the facility will cease operation of the coal-fired boilers no later than the dates specified in the rule,



AMERICAN OVERSIGHT

but lacks alternative disposal capacity in the interim. Under either of these situations, CCR units may continue to receive CCR so long as the conditions of the rule are satisfied.

Significantly, if the owner or operator has not identified alternative capacity within five years after the initial certification of a lack of capacity, the CCR units must cease receiving CCR and must initiate closure following the timeframes established in the CCR Rule. Therefore, unless an alternative is identified prior to the 5 year term, the CCR unit will have to cease receiving CCR by July 2024 and closure must be completed by July 2029, unless the requirements of a 2 year extension are met. If so, closure must be completed by July 2031.

Rule Costs

The costs of compliance with CCR regulations at power plants, closing ash ponds and non-compliant landfills, are substantial. A recent study of plant decommissioning costs suggests that environmental remediation can be more than fifty percent of decommissioning costs.[1] A study commissioned by the Office of Management and Budget in 2009 [2] estimated that closure-in-place of the 155 wet ash impoundments in the U.S. would cost about $39 billion over 10 years. Consider that $39 billion represents about 10 percent of total revenue generated by electricity sales in the U.S., according to the EIA. A more recent report [1] has suggested that these costs for closure may be even higher, because of the monitoring and remediation requirements in the updated CCR rule.

The Tennessee Valley Authority estimated the costs of closure-in-place for six of its wet coal ash impoundments (see table below). The total cost for these six plants is $0.28 billion, which is about 3% of TVA's total revenue from electricity sales for fiscal year 2016.

*Costs of Closure-In-Place at TVA Wet Coal Ash Impoundments. [Cited in Ref. 1]*

| Plant | Total Cost, $ | Cost per acre |
|---|---|---|
| Allen | $3,500,000 | $159,000 |
| Bull Run | $13,000,000 | $338,000 |
| Colbert | $10,000,000 | $192,000 |
| Sevier | $13,000,000 | $310,000 |
| Kingston | $40,000,000 | $1,290,000 |
| Widow's Creek | $200,000,000 | $571,000 |
| Total | $279,500,000 | $521,942 |

Duke Energy will close all its CCR facilities in the Carolinas. While Duke has not released closure costs for individual sites, it reported asset retirement obligations (AROs) associated with 35 CCR impoundments in the Carolinas of $4.24 billion (or $1,560,000 per acre). [3] For reference, Duke Energy's net income from the Carolinas was $1.2 billion in 2016.

Kentucky Utilities (KU) estimated in 2016 that the cost of compliance with both state and federal regulations to close surface impoundments at six of its plants (three operating and three closed plants) was $0.42 billion.[4] KU proposed to increase the cost of electricity to a portion of its municipal customers of up to 3.5 percent between 2016 and 2019.



AMERICAN OVERSIGHT

EXT-18-2615-G-000176

Thus, the cost of environmental compliance for coal-fired power plants is substantial and rising, as utilities begin to assess the cost of complying with CCR requirements. These costs represent substantial liabilities that will, in many cases, be passed along to rate payers. The cost of compliance with the Effluent Limitation Guidelines (ELGs) will also be substantial, although it is harder to estimate this until EPA provides a promised review and revision of certain key provisions of the ELGs in 2019.

Recent Developments (as of publication of this NCC report)

On March 15, 2018, EPA published a proposed rule to amend the CCR Rule ("Phase I CCR Rule Changes). EPA proposed two general categories of changes – the first was associated with a judicial remand in connection with a settlement agreement that resolved four claims brought by two sets of plaintiffs against the final CCR Rule. The second category was a set of revisions that were proposed in response to the WIIN Act. Many commented on the propose rule that an extension of the deadlines is necessary in order for the benefits of the concepts in the proposed rule can be realized by CCR unit owners/operators.

On July 30, 2018, EPA published a rule finalizing key portions of the Phase I Proposal. EPA included in the final rule an extension of key deadlines and the adoption of two critical flexibility provisions that have the potential to significantly alleviate the burdens of the April 2015 CCR Rule. The EPA summary of the final rule provides a good overview of the changes:

*Amendments to the National Minimum Criteria Finalized in 2018 (Phase One, Part One)*

*EPA is finalizing certain revisions to the 2015 regulations for the disposal of CCR in landfills and surface impoundments to:*

*Provide states with approved CCR permit programs under the Water Infrastructure Improvements for the Nation (WIIN) Act or EPA where EPA is the permitting authority the ability to use alternate performance standards;*

*Revise the groundwater protection standard for constituents which do not have an established drinking water standard (known as a maximum contaminant level or MCL); and*

*Provide facilities which are triggered into closure by the regulations additional time to cease receiving waste and initiate closure.*

*More specifically, with this final rule, EPA is finalizing two types of alternative performance standards that were proposed in March 2018. The first one allows a state director (in a state with an approved coal ash permit program) or EPA (where EPA is the permitting authority) to suspend groundwater monitoring requirements if there is evidence that there is no potential for migration of hazardous constituents to the uppermost aquifer during the active life of the unit and post closure care. The second allows issuance of technical certifications in lieu of a professional engineer.*

*In addition, EPA is revising the groundwater protection standards for four constituents in Appendix IV to title 40 of the Code of Federal Regulations (CFR) part 257 for which MCLs under the Safe Drinking Water Act have not been established. EPA also is extending the deadline by which facilities must close coal ash units for two situations:*

*Where the facility has detected a statistically significant increase above a graundwater protection standard from an unlined surface impoundment; or*

*Where the unit is unable to comply with the location restriction regarding placement above the uppermost aquifer.*

*Provisions from the March 2018 proposed rule that are not finalized in this Federal Register notice will be addressed in a subsequent rulemaking.*



AMERICAN OVERSIGHT

EXT-18-2615-G-000177

Note that, in the last sentence, EPA indicated that there are some issues not addressed in this Phase I Final Rule that they anticipate addressing in a subsequent rulemaking. Noticeably absent from the Phase I Final Rule is their decision not to finalize the proposal to add Boron to the list of "Appendix IV Constituents," which has significant programmatic implications.

References:

[1] Raimi, D. Decommissioning US Power Plants – Decisions, Costs, Key Issues. Resources for the Future, October 2017. http://www.rff.org/research/publications/decommissioning-us-power-plants-decisions-costs-and-key-issues

[2] EOP Group. Cost Estimates for Mandatory Closure of Surface Impoundments Used for the Management of Coal Combustion Byproducts at Coal-Fired Electric Utilities. 2009.

[3] Duke Energy Corporation. 10-K Filing to the U.S. Securities and Exchange Commission. 2016.

[4] Federal Energy Regulatory Commission. Order Accepting and Suspending Revised Rate schedules and Establishing Limited Hearing and Settlement Judge Procedures, Docket No. ER 17-234-000, December 30, 2016.



AMERICAN OVERSIGHT

EXT-18-2615-G-000178

Appendix 3 – Additional Perspectives

## Appendix 3A. The reality of the shift towards a new power generation mix

### Coal Retirements and the Risky Dynamics Ahead

**Richard L. Axelbaum**

**Energy, Environmental & Chemical Engineering – Washington University St. Louis**

Understanding the potential impacts that changes to the generation mix can have on grid stability, reliability and resilience will be essential going forward since we are entering a new era of power generation, and there is no precedent to draw on for experience. The scenario in which renewable energy growth continues on its current trajectory for another two decades is examined here to provide a basis for understanding the system wide/macro implications. The approach used involves a simplified analysis that allows the basic dynamics to be understood and the implications to be realized. The results indicate that the present trajectory could rapidly lead to risks to grid reliability if not properly managed. To understand why this is so, first, the drivers for growth in wind and solar are discussed, and then the analysis is presented.

In the past decade, efforts to replace dispatchable fossil fuel energy with non-dispatchable wind and solar[1–4] have grown rapidly. More recently, these efforts have gained momentum to the extent that it is now common for cities and companies to set goals to be 100% renewable within the next 10-30 years [5]. This movement can be found among most branches of society, including businesses, government leaders, major philanthropists, environmentalists and academics [9-13]. The movement has become so mainstream that a large segment of the population believes that 100% renewables is possible in the near future [6]. Of course, since hydropower is quite limited, this implies that about 90% of our electricity would need to come from wind and solar [7], i.e., non-dispatchable energy. This perspective has contributed to a major push to retire coal plants and replace them with wind and solar. The conviction that 100% renewables is achievable in the near future has also given rise to opposition for new natural gas pipelines, as they are considered unnecessary [14].

What are the implications of building massive amounts of Intermittent Renewable Energy (IRE), while at the same time retiring dispatchable coal plants? Is it a serious problem or can the system naturally support this transition to a new energy paradigm? The model below illustrates the scenario using some conservative assumptions.

First, consider Figure 1, where the increased penetration of wind and solar is shown over time. The solid red curve represents the IRE production in the U.S. since 2000 [8]. While the growth in IREs was nearly 20% in 2017, the dashed red curve represents an extrapolation based on a more *modest 10% annual growth*. This curve shows the mean production of IRE, not instantaneous production. The production lows associated with wind and solar generation are represented by a deviation from the mean during times of unfavorable conditions (for example, low or excessive wind speeds), represented by the black dotted curve. In this example, this curve represents 50% lower production compared to the average. Of course, the production of wind and solar can and does drop to less than 50% of the mean, but for the purposes of illustration we will *assume that it can only drop to 50% of the mean* for any significant length of time (say a few days or a week). The black dotted curve indicates how much energy can be produced during those periods of low IRE production.



AMERICAN OVERSIGHT

EXT-18-2615-G-000179

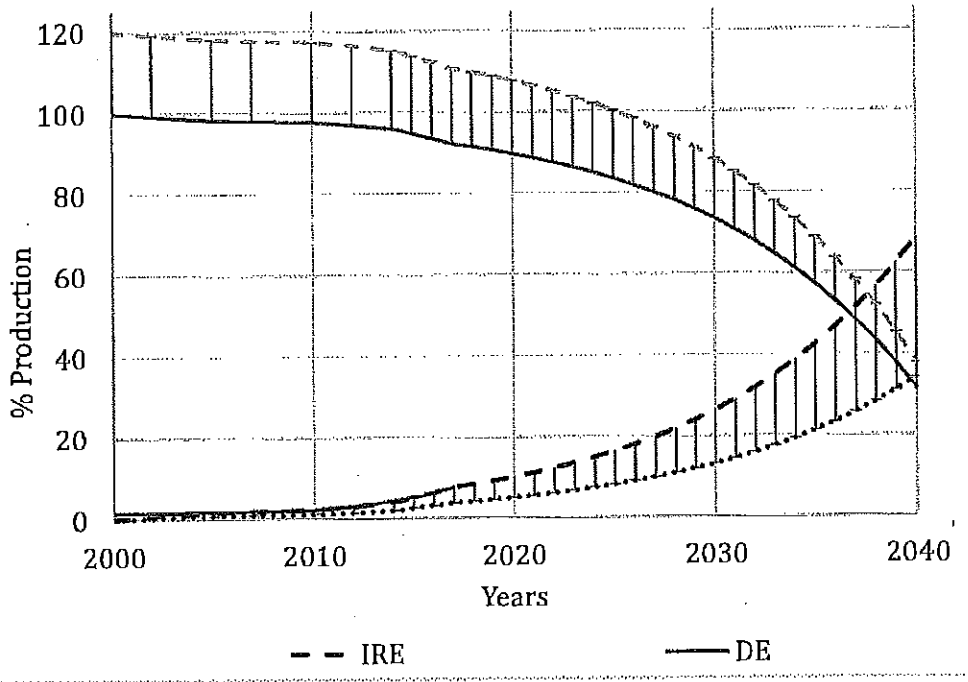



Figure 1. Mean production of Intermittent Renewable Energy (IRE) and Dispatchable Energy (DE) over time. Included are curves representing reductions from the mean for IREs (Lower IRE) and increases from the mean of DEs (Upper DE). The IRE curve assumes 10% annual growth after 2017, down from nearly 20% growth in 2017.

To illustrate the intermittency of IRE, Figure 2 shows the energy produced in the UK from wind during the end of May and early June of this year [15-16]. While wind resources are plentiful in the coastal regions in England, wind production went from supplying 20% of UK energy to less than a few percent and stayed that way for over a week. The black dotted curve in Figure 1 depicts such a phenomena but assumes that the drop is only 50% less than the mean production rate, which theoretically could be accomplished with significant battery resources. A key point here is that *there must be a dispatchable resource that can make up for the lost production during these periods of low IRE production*. More importantly, the *absolute* amount of energy that needs to be made up grows as the amount of IRE grows (see Figure 1).

Now consider the orange curve in Figure 1. This curve represents the reduction in dispatchable energy (DE) that occurs due to, for example, coal and nuclear retirements, and reflects the natural trend in retirements that occurs as IRE grows. In other words, as more IREs are brought into the grid, the average annual energy produced from dispatchable resources will decrease, because those plants that are no longer economical to run will be retired for financial reasons. This represents the phenomena the country is facing now. For this example, the sum of the IRE and the DE curves always adds up to 100%, as this is the natural state of the



AMERICAN OVERSIGHT

economic drivers, i.e., excess capacity will not exist without policy incentives. The dotted green curve above this curve represents the added capacity that is available from these DE sources by running them at a capacity over their mean. For the curve in Figure 1, this is assumed to be 20%. Note that for the purpose of this illustration, many assumptions have been made, and the impact of these assumptions on the conclusions will be considered later.

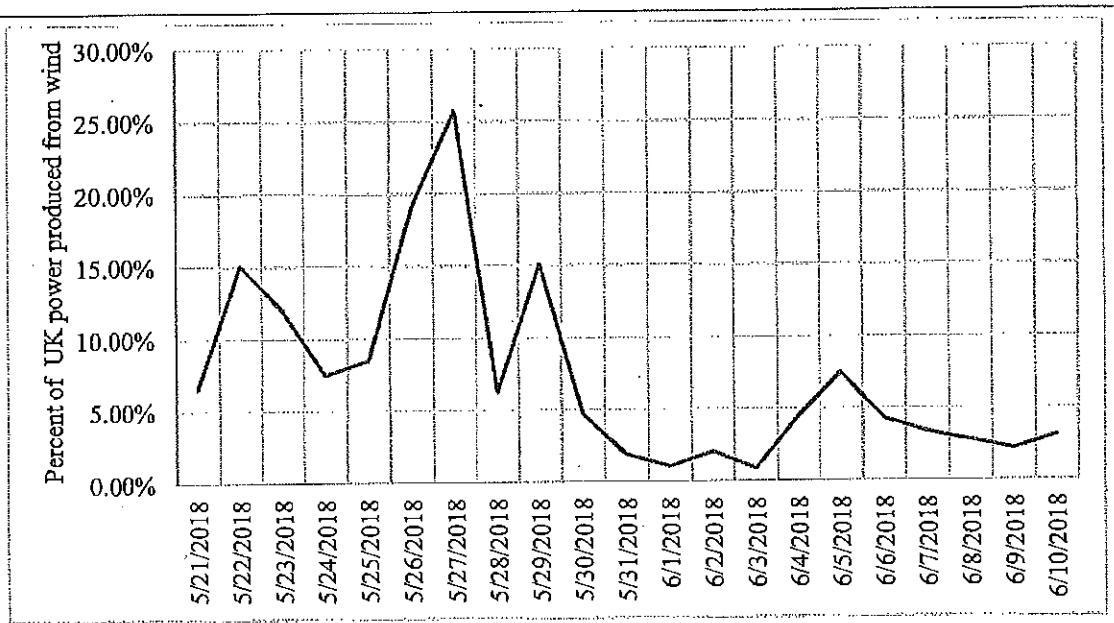


Figure 2: Percent of UK power produced from wind from May 21, 2018 to June 10, 2018.

**An important point to note is that as the number of coal plants is reduced, the *absolute* amount of energy that *can be made up* by ramping them up reduces as well. Similarly, as the amount of IRE is increased, the *absolute* amount of energy that *needs to be made up* during the lulls increases.**

While the above idea is shown in Figure 1, further analysis can identify certain conditions where the reliability of power availability becomes at risk. This is not an effort to quantify the precise timing or risk magnitude, which is a much more complex analysis. Rather the analysis that follows illustrates, for a given set of assumptions, when the risk of falling short of power starts to increase dramatically. The overarching point is that as the mix of generation sources changes, the risk to power reliability undergoes a sudden, steep and irreversible increase.

Figure 3 illustrates the consequences of the increase in intermittent energy as dispatchable energy drops shown in Figure 1. With increasing IRE penetration, and the subsequent retirement of dispatchable plants, there is a risk that a short-term fall off in IRE production may not be able to be made up by available DE resources.

The potential of falling short of power is characterized here by a risk factor, RF. For the purposes of this illustration, RF will be defined as RF = D/ (AC - D), where D is the demand and



AMERICAN OVERSIGHT

AC, Available Capacity, is the maximum amount of electricity that can be produced from both DE and IRE resources when the DEs are supplying their maximum and the IREs are supplying their assumed minimum. The denominator then represents the excess capacity that would be available if IRE production is further limited (such as in the UK discussion above). This definition of RF captures the dynamic that when available capacity is much larger than demand, the risk factor is low, and when it approaches demand, risk of electricity being unavailable rises rapidly. As an example, if there is an 80%/20% split of DE and IRE resources in the generation mix and DE production can be increased by 20% of its mean and IRE production can drop by 50% of its mean (i.e., the conditions of Figure 1), the available capacity will be %DE*1.2+ %IRE*0.5 = 106, which gives a risk factor of about 16%. The RF gradually increases with time initially, as IRE growth follows the 10% annual path shown in Figure 1, and eventually shows a rapid and dramatic increase, indicating a high likelihood of power shortfall.

Several scenarios of varying IRE/DE proportions are shown in Figure 3 to evaluate the impact of the various assumptions that have been made, to observe how the mix and range of IRE/DE plays out. For all of these scenarios the growth in IRE capacity is taken as that depicted in Figure 1 (i.e., 10% annual growth in IRE). The conditions labeled IRE50/DE20 represents the conditions shown in Figure 1 (i.e., IRE production can fall to 50% of its mean and the DE production can be increases 20% above its mean capacity.) The extreme increase in risk occurs at a different point in time, but is nonetheless a dramatic change in the relatively near future.

*The key point to bring out from this analysis, is that the change from a safe, reliable grid to an unreliable grid transitions rapidly (i.e., as IRE penetration increases the risk factor rises rapidly to a condition where the potential of falling short of power is high).*

More optimistic scenarios, such as IRE30/DE40, are also considered in the figure. For IREs to never fall below 30% from the mean (IRE30) would require massive battery installations. Also, in this case the DEs are assumed to be able to ramp up 40% more than their mean capacity (DE40). Note that new dispatchable plants typically operate at a capacity factor between 70-85%. The DE40 assumption implies that these plants are typically running at only 50-60% of their rated capacity. This is an uneconomical way of producing electricity and for anything much below this, the plant would be a candidate for retirement.

As can be seen from Figure 3, for all of these scenarios the general shape of the curve remains the same, in that there is limited risk followed by a rapid rise in risk; only the date for the rapid rise changes. Thus, with the present push to rapidly expand IREs, while simultaneously retiring coal plants, there can be a sudden change in the stability of the grid, unfelt until it may be too late. Of course, replacing coal with natural gas can reduce these risks, but it is clear that public opinion is beginning to view natural gas plants as unnecessary [17], making a major expansion of natural gas pipelines unlikely. Also, as pointed out elsewhere in this report, winter demand, gas pipeline bottlenecks and rising exports suggest that natural gas will not be able to curtail this situation, especially recognizing the rate at which risk factor curves in Figure 3 rise.

This analysis, while simplistic, identifies an important dynamic that should be considered in determining policy, particularly when considering the strong public sentiment of wanting to shift to a grid based on wind and solar. **The key finding is that the transition from a reliable to unreliable gird can occur quite rapidly.** Often advocates of 100% renewables will point to times of severe weather conditions, such as a heat wave or cold spell, where the grid was able to satisfactorily supply electricity, and then this example is used as a demonstration that the



AMERICAN OVERSIGHT

grid can safely handle the addition of more wind and solar. The analysis outlined here shows that there is a potential risk associated with extrapolating that argument to future times.

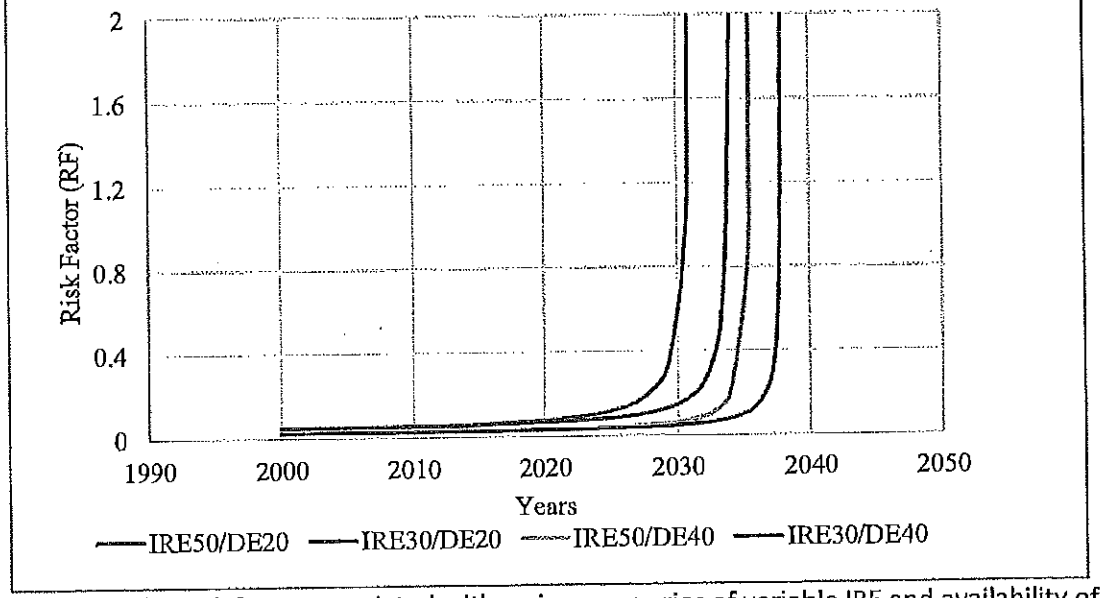



Figure 3: The Risk factor associated with various scenarios of variable IRE and availability of dispatchable energy.

References:

[1] M. A. Delucchi and M. Z. Jacobson, "Providing all global energy with wind, water, and solar power, Part II: Reliability, system and transmission costs, and policies," *Energy Policy*, vol. 39, no. 3, pp. 1170–1190, 2011.

[2] M. Z. Jacobson and M. A. Delucchi, "Providing all global energy with wind, water, and solar power, Part I: Technologies, energy resources, quantities and areas of infrastructure, and materials," *Energy Policy*, vol. 39, no. 3, pp. 1154–1169, 2011.

[3] M. Z. Jacobson, M. A. Delucchi, M. A. Cameron, and B. A. Frew, "Low-cost solution to the grid reliability problem with 100% penetration of intermittent wind, water, and solar for all purposes," *Proc. Natl. Acad. Sci.*, vol. 112, no. 49, pp. 15060–15065, 2015.

[4] M. Wright and P. Hearps, "Zero Carbon Australia Stationary Energy Plan," *Energy*, vol. 2011, p. 171, 2010.

[5] Sierra Club, "2017 Case Study Report : Cities Are Ready For 100% Clean Energy," p. 32, 2017.

[6] B. Y. C. Funk and B. Kennedy, "Cary Funk and Brian Kennedy," pp. 1–114, 2016.

[7] U. S. E. I. Administration, "Annual Energy Outlook 2018 with projections to 2050," *J. Phys. A Math. Theor.*, vol. 44, no. 8, pp. 1–64, 2018.

[8] Monthly Energy Review , EIA, 2018 "Energy."

[9] https://www.apple.com/newsroom/2018/04/apple-now-globally-powered-by-100-percent-renewable-energy/

[10] https://aws.amazon.com/about-aws/sustainability/

[11] https://environment.google/projects/announcement-100/

[12] https://www.microsoft.com/en-us/environment/energy

[13] https://news.samsung.com/global/samsung-electronics-to-expand-use-of-renewable-energy

[14] https://www.usatoday.com/story/money/business/2015/05/17/loveless-dominion-natural-gas-keystone/27401527/

[15] http://www.ref.org.uk/fuel/index.php?tab=day&pd=M&valdate=Jan-18&share=N

[16] https://www.nationalgrid.com/uk/electricity/market-operations-and-data/data-explorer

[17] J. Clemente "What Happens When You Don't Build Natural Gas Pipelines? Forbes, Jan 7, 2018



AMERICAN OVERSIGHT

EXT-18-2615-G-000183

[i] American Coalition for Clean Coal Electricity, "Retirement of Coal-Fired Electric Generating Units", August 2018, see Appendix 2A of this report.

[ii] The Contribution of the Coal Fleet to America's Electricity Grid, PA Consulting Group for ACCCE, August 2017. Reference cited is National Academy of Sciences, Engineering, and Medicine report on Enhancing the Resilience of the Nation's Electricity System.

[iii] PA Consulting, "Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type," August 2017.

[iv] PJM Interconnection, "PJM's Evolving Resource Mix and System Reliability," March 30, 2017.

[v] PA Consulting, "Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type," August 2017.

[vi] ACCCE Coal Facts – cited reference EIA, Electricity Monthly Update with data for December 2017, February 27, 2018.

[vii] ACCCE Coal Facts – cited reference EIA, Electric Power Monthly, February 2018.

[viii] National Mining Association, U.S. Coal Industry Statistics, https://nma.org/wp-content/uploads/2017/12/c_most_requested.pdf

[ix] ACCCE Coal Facts – cited reference EIA Annual Coal Report, November 2017 & National Mining Association, The Economic Contributions of U.S. Mining (2015 Update).

[x] PA-ACCCE Aug 2017.

[xi] John Miller, "How Important is Baseload Generation Capacity to U.S. Power Grids' Reliability?" The Energy Collective, 10-11-2017

[xii] DailyMail.com, "Britain Becalmed, Turbines across the UK are at a STANDSTILL after wind 'disappears' for a week causing a two-year low in electricity production," June 13, 2018.

[xiii] Bloomberg Power, "Britain Has Gone Nine Days Without Wind Power," June 7, 2018.

[xiv] IER, ibid.

[xv] EPRI, Program on Technology Innovation: Fossil Power Plant Cost and Performance Trends, August 31, 2006, https://www.epri.com/#/pages/product/1014405/?lang=en; see also NETL presentation on "Characterizing and Modeling Cycling Operations in Coal-fired Units," June 2016, https://www.eia.gov/outlooks/aeo/workinggroup/coal/pdf/EIA%20coal-fired%20unit%20workshop-NETL.pdf

[xvi] NERC Testimony, Senate Energy & Natural Resources Committee Hearing to Examine the Performance of the Electric Power System Under Certain Weather Conditions, January 23, 2018, https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=D982B4F9-ECAF-403B-88BA-C82D2634E2DA.

[xvii] North American Electric Reliability Corporation, 2018 Summer Reliability Assessment.

[xviii] PJM Interconnection, PJM's Evolving Resource Mix and System Reliability, March 30, 2017.

[xix] DOE Staff Report, op. cit.

[xx] IHS Markit, "Ensuring Resilient and Efficient Electricity Generation: The value of the current diverse US power supply portfolio," September 2017.

[xxi] EIA, Annual Energy Outlook 2018.

[xxii] Energy Information Administration, https://www.eia.gov/coal/reserves

[xxiii] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[xxiv] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[xxv] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[xxvi] Eurostat Electricity Price Statistics, http://ec.europa.eu/eurostat/statistics-explained/images/6/6e/Electricity_prices_2017s1_update_28_11_2017-final.xlsx

[xxvii] EIA Electric Power Monthly, June 2018

[xxviii] Eurostat op. cit.

[xxix] EIA Electric Power Monthly, op. cit.



AMERICAN OVERSIGHT

[xxx] Robert Bryce, "Maintaining the Advantage: Why the U.S. Should Not Follow the EU's Energy Policies," Center for Energy and the Environment at the Manhattan Institute, February 2014

[xxxi] EIA Form EIA-923 data and U.S. Bureau of Economic Analysis data

[xxxii] U.S. EIA Forms EIA-860 and EIA-923 data

[xxxiii] U.S. EIA Form EIA-860 data

[xxxiv] "Staff Report on Electricity Markets and Reliability" US Department of Energy August 2017.

[xxxv] NYMEX at CME.com

[xxxvi] National Coal Council, "Leveling the Playing Field: Policy Parity for CCS Technologies," November 2015, http://www.nationalcoalcouncil.org/studies/2015/Leveling-the-Playing-Field-for-Low-Carbon-Coal-Fall-2015.pdf

[xxxvii] EIA, "Direct Federal Financial Interventions and Subsidies in Energy in Fiscal Year 2016," April 2018, https://www.eia.gov/analysis/requests/subsidy/pdf/subsidy.pdf

[xxxviii] Congressional Research Service, Molly Sherlock and Jeffrey Stupak, "Energy Tax Incentives: Measuring Value Across Different Types of Energy Resources," March 19, 2015, https://www.fas.org/sgp/crs/misc/RA19S3.pdf.

[xxxix] American Coalition for Clean Coal Electricity, op. cit.

[xl] "Staff Report on Electricity Markets and Reliability", US Department of Energy August 2017

[xli] http://www.dsireusa.org/

[xlii] http://aceee.org/blog/2016/01/electricity-savings-keep-rising-year

[xliii] http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx

[xliv] Carbon Utilization Research Council, http://www.curc.net/curc-epri-advanced-technology-roadmap-1

[xlv] www.curc.net

[xlvi] The Hill, January 17, 2018, http://thehill.com/opinion/energy-environment/369386-germany-shows-how-shifting-to-renewable-energy-can-backfire

[xlvii] Reuters, October 24, 2017, https://www.reuters.com/article/germany-electricity-retail/german-household-power-prices-at-record-high-verivox-idUSL8N1MZ30X

[xlviii] News.com.au, February 10, 2017, https://www.news.com.au/technology/environment/why-south-australias-blackouts-are-a-problem-for-us-all/news-story/bc3bbc8be17d80844bc05ab7f5760d56

[xlix] ABC News, June 27, 2017, http://www.abc.net.au/news/2017-06-28/sa-has-most-expensive-power-prices-in-the-world/8658434

[l] Financial Post, October 26, 2017, https://business.financialpost.com/commodities/energy/ontario-household-electricity-prices-to-rise-52-per-cent-from-2017-to-2035

[li] Fraser Institute in the Toronto Sun, April 17, 2018, https://www.fraserinstitute.org/article/ontarios-power-price-crisis-how-did-it-happen-and-who-got-hurt

[lii] Utility Dive, https://www.utilitydive.com/news/americans-could-pay-more-for-clean-energy-but-will-they-really/372381/

[liii] EIA, Annual Energy Outlook 2018.

[liv] https://about.bnef.com/new-energy-outlook/.

[lv] EIA, Annual Energy Outlook 2018.

[lvi] https://www.forbes.com/sites/jeffmcmahon/2018/05/09/coal-collapsing-faster-under-trump-wind-solar-gas-to-benefit/#1a274c5b5ee4 (hereinafter Forbes2018).

[lvii] EIA, Annual Energy Outlook 2018.

[lviii] Balash, P. et al, "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units, Volume I: The Critical Role of Thermal Units during Extreme Weather Events," March 2018, DOE/NETL-2018/1883 (hereinafter NETL 2018).

[lix] California State Profile and Energy Estimates (EIA 2018) (available at https://www.eia.gov/state/?sid=CA#tabs-4).

[lx] SNL, "Update: California's Quiet Market for Coal," October 2015, available at: https://www.snl.com/InteractiveX/Article.aspx?cdid=A-34113318-14128



AMERICAN OVERSIGHT

EXT-18-2615-G-000185

[lxi] George State Profile and Energy Estimates (EIA 2018) (available at https://www.eia.gov/state/?sid=GA#tabs-4).

[lxii] See, e.g., http://pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017%20IRP%20Update/2017_IRP_Update.pdf.

[lxiii] Id. Forbes 2018

[lxiv] Righetti, T., Godby, R., Echeverri, D., Stoellinger, T., Coddington, K. "The Role of Energy Models: Characterizing the Uncertainty of the Future Electricity System to Design More Efficient and Effective Laws and Regulations,"8 Geo. Wash. J. of Energy & Envtl. L. 56 (2017).

[lxv] Figure by Emission Strategies, Inc. Data sources: Id. AEO2018, Id. Forbes 2018, Id. NETL2018, and https://rhg.com/research/taking-stock-2018/

[lxvi] EIA Annual Energy Outlook 2018, https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf

[lxvii] Id NETL2018, Exhibit 2-6.

[lxviii] National Academy Press, https://www.nap.edu/catalog/18250/emerging-workforce-trends-in-the-us-energy-and-mining-industries

[lxix] https://www.epa.gov/stationary-sources-air-pollution/proposal-affordable-clean-energy-ace-rule

[lxx] Putting the Puzzle Together, prepared by the State $CO_2$-EOR Deployment Working Group, 2016, see Figure 10, http://www.betterenergy.org/wp-content/uploads/2018/02/PolicyDriversCO2_EOR-V1.1_0.pdf

[lxxi] Apple Press release, "Apple now globally powered by 100 percent renewable energy" April 9, 2018 and CleanTechnica, Joshua S Hill, "Are Google & Apple Really "Powered" By Renewables? Understanding Corporate 100% Renewable Energy Policies" April 29th, 2018

[lxxii] U.S. DOE/NETL, "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units, Volume I: The Critical Role of Thermal Units During Extreme Weather Events," March 13, 2018. All quotes and graphics from this source.

[lxxiii] See National Coal Council, "Reliable & Resilient: The Value of Our Existing Coal Fleet," May 2014 for a similar assessment of the Polar Vortex, winter 2013-2014, http://www.nationalcoalcouncil.org/reports/1407/NCCValueExistingCoalFleet.pdf

[lxxiv] National Coal Council, "Leveling the Playing Field: Policy Parity for Carbon Capture and Storage Technologies," November 2015, http://www.nationalcoalcouncil.org/studies/2015/Leveling-the-Playing-Field-for-Low-Carbon-Coal-Fall-2015.pdf

[lxxv] https://www.epa.gov/sites/production/files/2018-08/documents/ace_nsr.pdf

[lxxvi] U.S. House of Representatives, Energy & Commerce Subcommittee on the Environment, February 14, 2018, https://energycommerce.house.gov/hearings/new-source-review-permitting-challenges-manufacturing-infrastructure/

[lxxvii] U.S. House of Representatives, Energy & Commerce Subcommittee on the Environment, May 16, 2018, https://energycommerce.house.gov/news/press-release/subenvironment-examines-legislation-addressing-new-source-review-permitting-reform/

[lxxviii] U.S. House of Representatives, H.R. 5270 https://www.congress.gov/bill/115th-congress/house-bill/5270/text; U.S. Senate, S. 2677 https://www.congress.gov/bill/115th-congress/senate-bill/2677; U.S. Senate, S. 2681 https://www.congress.gov/bill/115th-congress/senate-bill/2681

[lxxix] The full text of the 2018 Bipartisan Budget Act is available at https://www.cnn.com/2018/02/08/politics/bipartisan-budget-deal-text/index.html

[lxxx] Carbon Capture Coalition, http://carboncapturecoalition.org/legislation.

[lxxxi] IEA, 2012. CCS Retrofit: Analysis of the Globally Installed Coal-Fired Plant Fleet," p. 20 https://www.iea.org/publications/freepublications/publication/CCS_Retrofit.pdf

[lxxxii] "Advancing Large Scale Carbon Management: Expansion of the 45Q Tax Credit" (Energy Futures Initiative, May 2018) (available at https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/5b0604f30e2e7287abb8f3c1/1527121150675/45Q_EFI_5.23.18.pdf)



AMERICAN OVERSIGHT

[lxxxiii] Rhodes, J. "New Federal Budget Puts Price on Carbon: Expanded Carbon Credit Could Spur New Coal Power Investment" (The University of Texas at Austin Energy Institute, Mar. 9, 2018) (available at https://energy.utexas.edu/news/new-federal-budget-puts-price-carbon)

[lxxxiv] U.S. Senate, S. 843, https://www.congress.gov/bill/115th-congress/senate-bill/843

[lxxxv] U.S. Senate, S. 2005, https://www.congress.gov/bill/115th-congress/senate-bill/2005

[lxxxvi] National Coal Council, "Leveling the Playing Field," op. cit.

[lxxxvii] https://www.netl.doe.gov/research/coal/carbon-storage-1/program-support/natcarb-index

[lxxxviii] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2016

[lxxxix] https://www.netl.doe.gov/research/oil-and-gas/enhanced-oil-recovery/gas-flooding

[xc] https://www.ogj.com/articles/2017/09/ccs-must-clear-financial-obstacles-to-move-beyond-eor-witnesses-say.html

[xci] U.S. Department of Energy, National Energy Technology Laboratory, Carbon Storage Assurance Facility Enterprise (CarbonSAFE) Initiative, https://www.netl.doe.gov/research/coal/carbon-storage-1/storage-infrastructure/carbonsafe

[xcii] Galik, C. et seq. "The Role of Public Lands in a Low-Carbon Economy" (Duke University, March 2010) (available at https://nicholasinstitute.duke.edu/sites/default/files/publications/the-role-of-public-lands-in-a-low-carbon-economy-paper.pdf)

[xciii] "Storage of Captured Carbon Dioxide Beneath Federal Lands" (NETL, May 2009) (available at https://www.netl.doe.gov/File%20Library/Research/Energy%20Analysis/Coal/Fed-Land_403-01-02_050809.pdf)

[xciv] https://www2.usgs.gov/climate_landuse/carbon_seq/

[xcv] https://www.congress.gov/115/bills/hr4476/BILLS-115hr4476ih.pdf

[xcvi] Senator John Barrasso, S. 2776 PURPA Reform, https://www.barrasso.senate.gov/public/index.cfm/news-releases?ID=94E5B11C-CA6E-40A3-A6C8-CEBACD119635

[xcvii] https://pubs.naruc.org/pub/35409F29-0A60-FF1C-39C2-9985EDFCF478

[xcviii] Kent Zammit, Viability and Impacts of Implementing Various Power Plant Cooling Technologies, 2012 Technical Report, Electric Power Research Institute (EPRI) (Oct. 2012) ii and 3-1.

[xcix] Carey King, et al., Water Demand Projections for Power Generation in Texas, prepared for Texas Water Development Board (Aug. 2008) 25.

[c] Zammit at 5-2.

[ci] Zammit at 5-2.

[cii] See Outdoor Water Use in the United States, WaterSense, available at: http://www.epa.gov/WaterSense/pubs/outdoor.html (last accessed Jan. 30, 2013); *see also* Indoor Water Use in the United States, WaterSense, available at: http://www.epa.gov/watersense/pubs/indoor.html (last accessed Jan. 30, 2013).

[ciii] *See* U.S. Geological Survey, Trends in thermoelectric-power withdrawals and population, 1950-2005, available at: http://ga.water.usgs.gov/edu/wupt.html (last accessed Jan. 30, 2013).

[civ] Electric Power Research Institute, *Trend for Water Consumption per Unit Energy* (2012)

[cv] FERC Website.

[cvi] FERC website

[cvii] ACCCE, Retirement of U.S. Coal-Fired Electric Generating Units – Status as of May 1, 2018.

[cviii] Ibid.

[cix] Staff of the Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2016-2020*, Prepared for the House Committee on Ways and Means and the Senate Committee on Finance, January 30, 2017.

[cx] Bloomberg, "American Electric Cancels Plans for Largest U.S. Wind Farm," July 27, 2018, https://www.bloomberg.com/news/articles/2018-07-27/american-electric-cancels-plans-for-largest-u-s-wind-farm

[cxi] 153 FERC ¶ 61,221 (2015)

[cxii] 155 FERC ¶ 61,276 (2016)



AMERICAN OVERSIGHT

EXT-18-2615-G-000187

[cxiii] 162 FERC ¶ 61,128 (2018)(emphasis added)

[cxiv] EIA, *Electricity Monthly Update*, "Electric Power Sector Coal Stocks: March 2018," release date May 28, 2018.

[cxv] U.S. Department of Energy, Staff Report to the Secretary on Electricity Markets and Reliability (August 2017). Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Docket No. AD18-7-000, FERC, January 8, 2018.

[cxvi] FERC, Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Docket No. AD18-7-000, January 8, 2018.

[cxvii] FERC website

[cxviii] FERC, Order Rejecting Proposed Tariff Revisions, Granting In Part And Denying In Part Complaint, and Instituting Proceeding Under Section 206 of the Federal Power Act, Docket Nos. EL16-49-000 (Issued June 29, 2018).

[cxix] Federal Energy Regulatory Commission, Order Rejecting Proposed Tariff Revisions, Granting in Part and Denying in Part Complaint, and Instituting Proceeding under Section 206 of the Federal Power Act, Docket No. EL16-49-000, Issued June 29, 2018.

[cxx] ISO-NE, Operational Fuel-Security Analysis, January 17, 2018.

[cxxi] PJM, *Valuing Fuel Security*, April 30, 2018.

[cxxii] Quanta Technology, LLC, Ensuring Reliability and Resilience – A Case Study for the PJM Power Grid, April 23, 2018.

[cxxiii] Quanta study

[cxxiv] Connell, D. Opportunities for New Technology in Coal Mining and Beneficiation; In Proceedings of the National Coal Council Annual Spring Meeting 2018, Washington, DC, April 2018. Available: http://www.nationalcoalcouncil.org/page-Meeting-Presentations.html

[cxxv] U.S. Department of Labor, Mine Safety and Health Administration; Coal Fatalities for 1900 Through 2017; Available: https://arlweb.msha.gov/stats/centurystats/coalstats.asp

[cxxvi] ALFRED (Archival Economic Data, St. Louis Fed.); Total Coal Production for United States; Available: https://alfred.stlouisfed.org/series?seid=A01210USA448NNBR&utm_source=series_page&utm_medium=related_content&utm_term=related_resources&utm_campaign=Alfred.

[cxxvii] U.S. Energy Information Administration; Coal Data; Available: https://www.eia.gov/coal/data.php#production

[cxxviii] Connell, D. Opportunities for New Technology in Coal Mining and Beneficiation; In Proceedings of the National Coal Council Annual Spring Meeting 2018, Washington, DC, April 2018. Available: http://www.nationalcoalcouncil.org/page-Meeting-Presentations.html.

[cxxix] U.S. Energy Information Administration; Drilling Productivity Report; Available: https://www.eia.gov/petroleum/drilling/

[cxxx] National Research Council; Coal Research and Development to Support National Energy Policy; The National Academies Press: Washington, DC, 2007

[cxxxi] U.S. Department of Energy FY 2019 Congressional Budget Request, Volume 3 Part 1, DOE/CF-0140, March 2018

[cxxxii] Fiscor, S. Improved Safety and Productivity Through Advanced Shearer Automation; Coal Age 2017, 122(6), 16-23

[cxxxiii] Connell, D. Opportunities for New Technology in Coal Mining and Beneficiation; In Proceedings of the National Coal Council Annual Spring Meeting 2018, Washington, DC, April 2018. Available: http://www.nationalcoalcouncil.org/page-Meeting-Presentations.html

[cxxxiv] Nebot, E.M. Surface Mining: Main Research Issues for Autonomous Operations; In: Thrun S., Brooks R., Durrant-Whyte H. (eds) Robotics Research. Springer Tracts in Advanced Robotics, vol 28. Springer: Berlin, Heidelberg, 2007.

[cxxxv] EY; Productivity in Mining: Now Comes the Hard Part – A Global Survey (2017); Available: https://www.ey.com/gl/en/industries/mining---metals/ey-productivity-in-mining-now-comes-the-hard-part.

[cxxxvi] Morton, J. New Wireless Tech for Underground Mines Could Save Lives, Costs; Coal Age 2018, 123(3), 20-23.



AMERICAN OVERSIGHT

EXT-18-2615-G-000188

[cxxxvii] EY; Productivity in Mining: Now Comes the Hard Part – A Global Survey (2017); Available: https://www.ey.com/gl/en/industries/mining---metals/ey-productivity-in-mining-now-comes-the-hard-part.

[cxxxviii] Improving Competitiveness of U.S. Coal Dialogue: Summary Report; Prepared for U.S. Department of Energy, Office of Fossil Energy, Office of Advanced Fossil Technology Systems by Energetics Incorporated; Contract LTI-DE-FE0022594, February 2018. Available: https://www.osti.gov/servlets/purl/1422998

[cxxxix] Improving Competitiveness of U.S. Coal Dialogue: Summary Report; Prepared for U.S. Department of Energy, Office of Fossil Energy, Office of Advanced Fossil Technology Systems by Energetics Incorporated; Contract LTI-DE-FE0022594, February 2018. Available: https://www.osti.gov/servlets/purl/1422998.

[cxl] Final Technical Report to the DOE project # DE-FC26-04NT41763

[cxli] A. Bland, et al, "Pilot Testing of WRI's Novel Mercury Control Technology by Pre-combustion Thermal Treatment of Coal," Topical Report WR-08-R026 for DOE project DE-FC26-98FT40323

[cxlii] Ibid

[cxliii] Improving Power Plant Efficiency and Power Generation, August 8, 2013 http://www.mcilvainecompany.com/Universal_Power/Subscriber/PowerDescriptionLinks/Charles%20Bullinger%20-%20Great%20River%20Energy%20-%208-8-13.pdf

[cxliv] https://www.prnewswire.com/news-releases/cnx-coal-resources-and-omnis-to-develop-first-solid-energy-refinery-to-produce-clean-coal-300514302.html

[cxlv] https://www.reuters.com/article/vitol-peabody-oil-coal/vitol-invests-in-coal-to-oil-venture-as-un-shipping-fuel-rules-loom-idUSL8N1UD3AY

[cxlvi] https://mineralsrefining.com/

[cxlvii] Improving Competitiveness of U.S. Coal Dialogue: Summary Report; Prepared for U.S. Department of Energy, Office of Fossil Energy, Office of Advanced Fossil Technology Systems by Energetics Incorporated; Contract LTI-DE-FE0022594, February 2018. Available: https://www.osti.gov/servlets/purl/1422998

[cxlviii] Eisenhauer/Scheer, "Opportunities to Improve the Efficiency of Existing Coal-fired Power Plants", National Energy Technology Laboratory Workshop Report, July 2009.

[cxlix] National Energy Technology Laboratory, Case Study on Steam Cycle Upgrade, NETL unpublished analysis discussed at NETL-Pittsburgh meeting with NCC representatives, July 18, 2018.

[cl] Impact of Cycling on the Operation and Maintenance Cost of Conventional and Combined-Cycle Power Plants, 3002000817, EPRI Final Report, September 2013.

[cli] Non-Battery Bulk Energy Storage: Options for Thermal Energy Storage Integration with Fossil Power Plants, 3002011217, EPRI Report, December 2017.

[clii] Non-Battery Bulk Energy Storage: Options for Thermal Energy Storage Integration with Fossil Power Plants. EPRI, Palo Alto, CA: 2017. 3002011217.

[cliii] EPA, page 9-12, https://www.epa.gov/sites/production/files/2015-10/documents/steam-electric-tdd_10-21-15.pdf

[cliv] https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201404&RIN=2040-AF14

[clv] https://www.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-2015-final-rule

[clvi] https://www.energy.gov/fe/articles/doe-invest-86-million-innovative-technologies-enhance-fossil-energy-power-system

[clvii] Taggart, R. K.; Hower, J. C.; Dwyer, G. S.; Hsu-Kim, H. Trends in the Rare Earth Element Content of U.S.-Based Coal Combustion Fly Ashes. Environ. Sci. Technol. 2016, 50, 5919-5926

[clviii] https://www.netl.doe.gov/research/coal/rare-earth-elements

[clix] Atkins, R. Coal to Products, 2018, Presentation at National Coal Council Spring Meeting, http://www.nationalcoalcouncil.org/NCC-Events/2018/Atkins-NCC-Spring-2018.pdf

[clx] CURC-EPRI Advanced Fossil Energy Technology Roadmap, July 2018, http://www.curc.net/curc-epri-advanced-technology-roadmap-1

[clxi] PJM, "Valuing Fuel Security," April 30, 2018.



AMERICAN OVERSIGHT

[clxii] Gerry Cauley (president and CEO, North American Electric Reliability Corporation), letter to Energy Secretary Rick Perry, May 9, 2017.

[clxiii] The Contribution of the Coal Fleet to America's Electricity Grid, PA Consulting Group for ACCCE, August 2017. Reference cited is National Academy of Sciences, Engineering, and Medicine report on Enhancing the Resilience of the Nation's Electricity System.

[clxiv] NIAC, "Critical Infrastructure Resilience Final Report and Recommendations," September 9, 2009.

[clxv] PJM Interconnection, PJM's Evolving Resource Mix and System Reliability, March 30, 2017.

[clxvi] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[clxvii] Discussion Roger H. Bezdek and Robert M. Wendling, "Not-So-Green Superhighway: Unforeseen Consequences of Dedicated Renewable Energy Transmission," *Public Utilities Fortnightly*, February 2012, pp. 34 - 42.

[clxviii] James Schlesinger and Robert Hirsch, "Getting Real on Wind and Solar," *Washington Post*, April 24, 2009.

[clxix] See the discussion in Roger H. Bezdek and Robert M. Wendling, "Not-So-Green Superhighway: Unforeseen Consequences of Dedicated Renewable Energy Transmission," op. cit.

[clxx] The New York Independent System Operator, "Power Trends: New York's Evolving Electric Grid, 2017," 2017.

[clxxi] U.S. Energy Information Administration, "Capacity Factors for Utility Scale Generators Not Primarily Using Fossil Fuels, January 2013-September 2017," *Electric Power Monthly*, December 1, 2017.

[clxxii] Robert Bryce, "Texas Wind Power: The Numbers Versus the Hype," *Energy Tribune*, August 5, 2009.

[clxxiii] Keith Poll, "ERCOT Seasonal Assessment Report for Summer 2016," Constellation Energy Resources, LLC, March 2016.

[clxxiv] ERCOT was eventually pressured by groups like the Sierra Club pressured use selected past history to make wind appear more reliable -- even if that meant an optimistic assumption that could result in capacity shortfalls under certain circumstances.

[clxxv] Susan Combs, "Texas Power Challenge: Getting the Most for Your Dollars," Texas Comptroller of Public Accounts, September 2014.

[clxxvi] Mike Nasi, "The Cautionary Tale of the Once-idealized Texas Power Market," presented at the American Coal Council 2018 Spring Coal Forum, Clearwater, Florida, March 2018.

[clxxvii] http://www.transmission.bpa.gov/business/operations/wind/WindGen_VeryLow_Jan08Jan09x.xls

[clxxviii] *See* "In a First, Wind Exceeds Hydro in BPA Region," Platt's *Megawatt Daily*, October 19, 2012, p. 9.

[clxxix] James Conca, "America's Heat Wave No Sweat For Nuclear Power," *Forbes*, July 28, 2016.

[clxxx] Jonathan A. Lesser, "Wind Intermittency and the Production Tax Credit: A High Cost Subsidy for Low Value Power," Continental Economics, October 2012.

[clxxxi] J. Lesser, "Wind Power in the Windy City: Not There When Needed" *Energy Tribune*, July 25, 2012, and J. Lesser, "Wind Generation Patterns and the Economics of Wind Subsidies," *The Electricity Journal*, Volume 26, No. 1 (January-February 2013), pp. 8-16.

[clxxxii] Ibid.

[clxxxiii] Roger H. Bezdek, "Sur-Rebuttal Testimony Before the Office of Administrative Hearings For The Minnesota Public Utilities Commission, State Of Minnesota in the Matter of the Further Investigation in to Environmental and Socioeconomic Costs Under Minnesota Statute 216B.2422, Subdivision 3," OAH Docket No. 80-2500-31888, MPUC Docket No. E-999-CI-14-643, September 10, 2015.

[clxxxiv] http://dailyenergyreport.com/wp-content/uploads/2011/06/NY_CF2008-2010_final.jpg. The data for the estimates were obtained from the *2011 New York ISO Gold Book*.

[clxxxv] Nina Pierpont, Wind Turbine Syndrome: A Report on a National Experiment, May 2013.

[clxxxvi] Ibid.

[clxxxvii] UCAP is a measure of the amount of capacity that capacity resources may offer in the capacity market, and on a seasonal basis, represents the capability of the resource adjusted by the potential unavailability of the unit



AMERICAN OVERSIGHT

based on historical performance data. See Paul Hibbard, Todd Schatzki, and Sarah Bolthrunis, "Capacity Resource Performance in NYISO Markets an Assessment of Wholesale Market Options," Analysis Group Inc., October 2017.

[cxxxviii] New York State Reliability Council, LLC, Installed Capacity Subcommittee, New York Control Area Installed Capacity Requirement For the Period May 2016 To April 2017: Appendices, December 2015; NYISO 2011 Installed Capacity Manual.

[cxxxix] For example, due to Britain's increasing reliance on wind turbines to generate electricity, Steve Holliday, Chief Executive of the British National Grid, stated that, by 2020, the British people will have to change their behavior to use electricity "when it is available" rather than when it is needed; "Era of Constant Electricity at Home is Ending, Says Power Chief," the *Daily Telegraph*, March 2, 2011.

[cxc] Paul Miskelly, "Wind Farms in Eastern Australia -- Recent Lessons," *Energy & Environment*, Vol. 23, No, 8 (December 2012) pp. 1233-1260.

[cxci] Iain Staffell and Richard Green "How Does Wind Farm Performance Decline with Age?" *Renewable Energy*, Volume 66 (June 2014), Pages 775-786.

[cxcii] Ibid.

[cxciii] Gordon Hughes, *The Performance of Wind Farms in the United Kingdom and Denmark*, prepared for the Renewable Energy Foundation, London, 2012. The load factor is determined by measuring the actual amount of electricity output over a time period against the total output expected had the turbine operated for 100 percent of the time period. The ratio is expressed as a percentage.

[cxciv] https://emp.lbl.gov/sites/all/files/lbnl-1005057.pdf.

[cxcv] New York Independent System Operator, "*Power Trends 2017*," op. cit.

[cxcvi] Ibid.

[cxcvii] "California Independent System Operator, "Renewables Reporting," www.caiso.com; Jeff St. John, "The California Duck Curve Is Real, and Bigger Than Expected," *Greentech Media*, November 3, 2016; Paul Denholm, Matthew O'Connell, Gregory Brinkman, and Jennie Jorgenson, "Overgeneration from Solar Energy in California: A Field Guide to the Duck Chart" NREL/TP-6A20-65023," National Renewable Energy Laboratory, November 2015.

[cxcviii] See, for example, Jeremy Deaton, "New York is Betting on Renewables to Replace a Major Nuclear Power Plant, "*Think Progress*, January 11, 2017.

[cxcix] "EIA Electricity Generator Data Show Power Industry Response to EPA Mercury Limits" July 7, 2016 , EIA Today In Energy: https://www.eia.gov/todayinenergy/detail.php?id=26972



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Sneed, Michelle
**Sent:** Wednesday, September 05, 2018 5:12 AM
**To:** jgellici@ncc1.org;Giove, Joseph;Sarkus, Thomas (NETL);Matheney, Doug;Kokkinos, Angelos;Bossie, Darren
**Subject:** RE: NCC Power Reset Report Draft

Hi Janet,
Thank you for sending this courtesy draft.
Looking forward to the meeting next week!

Michelle

---

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Tuesday, September 04, 2018 4:36 PM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>
**Subject:** NCC Power Reset Report Draft

Ladies & Gentlemen ~
The attached draft version of the NCC's Power Reset: Optimizing the Existing Coal Fleet report for Secretary Perry has been posted to the NCC website today for public review and is being distributed to all NCC members for consideration in advance of their vote on the report on September 13th.

This draft is being provided to you as a courtesy. As you are aware, comments on NCC reports from Department of Energy staff cannot be entertained until after NCC members have approved the report. Once approved, we look forward to scheduling a time to provide a detailed briefing to DOE staff on the findings and recommendations from this report, and to address any questions or comments you might have.

We appreciate the FACA guidance provided by DOE staff as we've worked through the report preparation process since early this Spring, especially that of our DDFO Joe Giove. Looking forward to seeing you in Norfolk, September 13th.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org



AMERICAN OVERSIGHT


Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Wednesday, September 05, 2018 1:09 PM
**To:** Matheney, Doug
**Subject:** FW: Roxanne Brown

FYI

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202).756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** hstanford@ncc1.org [mailto:hstanford@ncc1.org]
**Sent:** Wednesday, September 5, 2018 4:07 PM
**To:** 'Janet Gellici - National Coal Council' <jgellici@ncc1.org>
**Subject:** Roxanne Brown

Roxanne will not be attending the fall meeting.

H

Hiranthie Stanford
Director of Membership & Meetings
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524

---

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Giove, Joseph
**Sent:** Thursday, September 06, 2018 10:12 AM
**To:** jgellici@ncc1.org;Matheney, Doug;Sarkus, Thomas (NETL)
**Subject:** RE: Concur Itinerary 09/12/2018: NCC 2018 FALL MEETING IN NORFOLK, VA (LWAICU)

I hear ya...and it's still 60 for quorum...one more than 50% based on 118 members (119 minus Connie Senior).

Joe

---

**From:** jgellici@ncc1.org <jgellici@ncc1.org>
**Date:** Thursday, Sep 06, 2018, 10:28 AM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>, Matheney, Doug <Doug.Matheney@hq.doe.gov>, Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>
**Subject:** RE: Concur Itinerary 09/12/2018: NCC 2018 FALL MEETING IN NORFOLK, VA (LWAICU)

Thanks. Disappointing about Chuck ~ not sure why he cancelled. (b) (6)
I believe this brings our NCC attendees down to 64 ~ we need 59 for a quorum. Not much sleeping going on here at night and finger nails are not looking good.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Giove, Joseph [mailto:Joseph.Giove@HQ.DOE.GOV] ,
**Sent:** Thursday, September 6, 2018 12:12 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>; 'Janet Gellici - National Coal Council' <jgellici@ncc1.org>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>
**Subject:** FW: Concur Itinerary 09/12/2018: NCC 2018 FALL MEETING IN NORFOLK, VA (LWAICU)

FYI

---

**From:** Lacey, Cynthia (CONTR) <Cynthia.Lacey@Hq.Doe.Gov>
**Date:** Thursday, Sep 06, 2018, 9:03 AM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Cc:** hstanford@ncc1.org <hstanford@ncc1.org>
**Subject:** FW: Concur Itinerary 09/12/2018: NCC 2018 FALL MEETING IN NORFOLK, VA (LWAICU)

Just so you know, we have two cancellations so far. Dr. Tomasz Wiltowski canceled on Tuesday, September 4th and below is the cancellation for Charles McConnell.



AMERICAN OVERSIGHT

*Cynthia Lacey*
*Department of Energy*
*Office of Fossil Energy*
*Office of Clean Coal and Carbon Management*
*Germantown E-133*
*Cynthia.Lacey@hq.doe.gov*
*301-903-9451*

**From:** Kelly Cline [mailto:ilstu05@rice.edu]
**Sent:** Thursday, September 06, 2018 9:34 AM
**To:** Lacey, Cynthia (CONTR) <Cynthia.Lacey@Hq.Doe.Gov>
**Subject:** FW: Concur Itinerary 09/12/2018: NCC 2018 FALL MEETING IN NORFOLK, VA (LWAICU)

Hello Cynthia, good morning,

Unfortunately, Charles McConnell is no longer able to attend the NCC Fall meeting. Would you please cancel the flights below?

Thank you for your help,

Kelly Cline

Program Manager I Energy and Environment Initiative (EEi) | eei.rice.edu | Facebook |
kc26@rice.edu | Allen Center 315 – MS 603 | phone 713.348.4062 | fax 713.348.4105 |

RICE
Energy and Environment Initiative

**From:** Charles D McConnell [mailto:charles.d.mcconnell@rice.edu]
**Sent:** Thursday, August 16, 2018 12:57 PM
**To:** 'Kelly Cline' <kelly.cline@rice.edu>
**Subject:** FW: Concur Itinerary 09/12/2018: NCC 2018 FALL MEETING IN NORFOLK, VA (LWAICU)

Car and hotel and driving directions all in the travel folio I'm sure.
thx

*Charles D. McConnell*
Executive Director, Energy and Environment Initiative

Rice University, MS 603 | Allen Center, Suite 315A | 6100 Main St., Houston, TX 77005 |
office 713.348.3871 | cell (b) (6)
fax 713.348.4105 | eei.rice.edu | Facebook |

RICE
Energy and Environment Initiative



AMERICAN OVERSIGHT

**From:** Concur Travel [mailto:TravelWizard@concursolutions.com]
**Sent:** Thursday, August 16, 2018 12:52 PM
**To:** Charles D McConnell <charles.d.mcconnell@rice.edu>; Cynthia.Lacey@hq.doe.gov
**Subject:** Concur Itinerary 09/12/2018: NCC 2018 FALL MEETING IN NORFOLK, VA (LWAICU)

## Trip Overview

**Trip Name:** NCC 2018 Fall Meeting in Norfolk, VA
**Start Date:** September 12, 2018
**End Date:** September 13, 2018
**Created:** August 16, 2018, Cynthia Lacey *(Modified: August 16, 2018)*
**Description:** Invitational Traveler, Member, National Coal Council (NCC) a Federal Advisory Committee of the Secretary of Energy, will be traveling to Norfolk, VA, to attend NCC Fall 2018 Annual Meeting.
**Trip Purpose:** MISSION (OPERATIONAL)
**Agency Record Locator:** LWAICU
**Passengers:** Charles Dewitt Mcconnell
**Total Estimated Cost:** $488.39 USD

**Important: Reservations must be approved and ticketed no later than: 09/10/2018 11:00 AM Eastern**
**The trip will be automatically cancelled if it is not approved before the deadline.**

**Agency Name:** ADTRAV - DOE

## Reservations

## Wednesday, September 12, 2018

### Flight Houston, TX (IAH) to Norfolk, VA (ORF)

**United 6035**
Operated by: MESA AIRLINES DBA UNITED EXPRESS

**Departure: 12:00 PM**
**Seat:09A (Confirmed)**
Houston George Bush Intercontinental Airport (IAH)
Terminal:B
Duration: 2 hours, 54 minutes
Nonstop

**Confirmation: DWYSB5**
Status: Confirmed
Air Frequent Flyer Number (b) (6)

**Arrival: 03:54 PM**
Norfolk Intl Airport (ORF)

**Additional Details**
Aircraft: E7W
E-Ticket
Emissions: 467.6 lbs $CO_2$
Cabin: Economy (W)

Distance: 1199 miles

Meal: Meal at Cost

## Thursday, September 13, 2018

### Flight Norfolk, VA (ORF) to Houston, TX (IAH)

**United 6192**
Operated by: MESA AIRLINES DBA UNITED EXPRESS



AMERICAN OVERSIGHT

**Departure: 04:45 PM**
**Seat:09A (Confirmed)**
Norfolk Intl Airport (ORF)
Duration: 3 hours, 12 minutes
Nonstop

**Arrival: 06:57 PM**
Houston George Bush Intercontinental Airport (IAH)
Terminal:B

**Additional Details**
Aircraft: E7W
E-Ticket
Emissions: 467.6 lbs $CO_2$
Cabin: Economy (W)

**Confirmation: DWYSB5**
Status: **Confirmed**
Air Frequent Flyer Number: (b) (6)

Distance: 1199 miles

Meal: Meal at Cost

## Total Estimated Cost

Air
**Airfare quoted amount:** $427.90 USD
**Taxes and fees:** $60.49 USD

**Total Estimated Cost:** $488.39 USD

Restrictions

Quote: **REFUNDABLE**

**TICKET NOT YET ISSUED. AIRFARE QUOTED IN ITINERARY IS NOT GUARANTEED UNTIL TICKETS ARE ISSUED.**

## Remarks

**********
DUE TO RECENT CHANGES IN THE FY13 GOVERNMENT CITY-PAIR
PROGRAM/CPP, YOUR AIR RESERVATIONS ARE SUBJECT TO
CANCELLATION BY THE AIRLINES IF NOT TICKETED AT LEAST
48 HOURS PRIOR TO SCHEDULED DEPARTURE.
PLEASE ENSURE ALL NECESSARY APPROVALS ARE PROCESSED IN
ACCORDANCE WITH YOUR AGENCY BUSINESS RULES, BUT NO LESS
THAN 3 BUSINESS DAYS PRIOR TO DEPARTURE TO ENSURE
TICKETING. THIS 48 CANCELLATION RULE DOES NOT APPLY TO
INTERNATIONAL RESERVATIONS UNLESS YOUR TRIP HAS
RESERVATIONS REQUIRE SEPARATE AIR TICKETS.
**********

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** hstanford@ncc1.org
**Sent:** Friday, September 07, 2018 1:45 PM
**To:** Matheney, Doug
**Subject:** RE: Norfolk Southern Lambert's Point Coal Export Terminal Tour Confirmation

Thank you Doug have a good weekend.

**From:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Sent:** Friday, September 07, 2018 3:03 PM
**To:** hstanford@ncc1.org
**Subject:** RE: Norfolk Southern Lambert's Point Coal Export Terminal Tour Confirmation

Yes

---

**From:** hstanford@ncc1.org <hstanford@ncc1.org>
**Date:** Friday, Sep 07, 2018, 9:35 AM
**To:** hstanford@ncc1.org <hstanford@ncc1.org>
**Subject:** Norfolk Southern Lambert's Point Coal Export Terminal Tour Confirmation

Ladies & Gentleman,

The 2018 Fall meeting is just days away. We look forward to seeing all of you in Norfolk, VA. Many of you have signed up for our coal export tour on Thursday, September 13th. Please take this time to confirm your participation in the Norfolk Southern Lambert's Point Coal Export Terminal Tour. The tour is immediately following our lunch on Thursday at 12:45pm – 4:00 pm. Space is limited for this tour and your confirmation is needed. If your plans have changed and you can no longer make the tour please let me know. Thank you in advance for your response.

Hiranthie

Hiranthie Stanford
Director of Membership & Meetings
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524

---

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Saturday, September 08, 2018 8:36 AM
**To:** Slone, Deck;Danny Grav;Lawson David;Holly Krutka PhD;Brownell, Bill;(b) (6) Burk, Justin M;George Duggan;Giove, Joseph;Matheney, Doug;Hiranthie Stanford
**Subject:** NCC Meeting - Tropical Storm Florence

**Importance:** High

Well, absolutely nothing about the NCC 2018 Fall Annual Meeting has been easy and the challenges continue. I'm fortunate enough to have friends who are weather gurus and I'm working with them to secure their best advice on the pending path and intensity of now Tropical Storm Florence. Currently, it appears that Norfolk will be wet but spared the brunt of the storm. But of course that could change. I think we'll have a more definite projection of the storm's path and intensity on Monday.

On Monday afternoon, we'll need to make a decision about whether to proceed with the meeting or not. On Monday morning, we'll begin discussions with the hotel regarding execution of our force majeure clause just in case.

Regardless of the storm's Norfolk impact, I do anticipate that travel will be disrupted and we are unlikely to have a quorum of members able to attend the meeting on Thursday. We currently have 64 members attending; we need 59 present for a quorum. I believe, therefore, that we will need to postpone the vote on both reports and schedule a webcast to present findings and recommendations from the two reports to NCC members and secure their votes. DOE will need time to organize the webcast and, due to FACA requirements that NCC meetings be Federal Register noticed, I suspect we'll be unable to host a webcast until the week of October 8th at the very earliest, more likely the week of October 15th.

**Question for DOE General Counsel** (b) (5)

(b) (5)

(b) (5)

(b) (5) Given the weather outlook, I also think the boat excursion on the evening of 9-12 and the terminal tour the afternoon of 9-13 are in jeopardy (we do have a backup plan to host the 9-12 reception inside).

So there you have it. I just wanted to provide you all with a heads up. Would welcome any thoughts or advice at this point. I'm not sure there's enough chocolate in the world to get me through this meeting. ☺

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004



AMERICAN OVERSIGHT

Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** hstanford@ncc1.org
**Sent:** Monday, September 10, 2018 9:35 AM
**To:** Matheney, Doug
**Subject:** [EXTERNAL] NCC Meeting Cancellation

**Importance:** High

Ladies & Gentlemen ~
Regretfully but in the interest of safety, the National Coal Council is cancelling its 2018 Fall Annual Meeting in Norfolk, VA in direct response to severe weather conditions associated with Hurricane Florence. At this time, we are not planning on rescheduling the meeting. We will, however, be hosting a webcast in early October to review the findings and recommendations from two reports that have been prepared by Secretary Perry – one on Advancing U.S. Coal Exports and the other on Optimizing the Existing U.S. Coal Fleet. NCC members will have the opportunity to accept these reports and forward them to the Secretary during that webcast. Details to follow.

If you have reservations at The Hilton Norfolk The Main hotel, we recommend you call the hotel **TODAY** at 866-238-4218 to cancel your room.

If you have questions, please let me know.
Please mark your calendars for the NCC's 2019 meeting dates: April 11-12 (35th Anniversary Celebration) and September 11-12, both meetings to be hosted in Washington, DC.

Hiranthie Stanford
Director of Membership & Meetings
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524

**********
This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.
**********



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Tuesday, September 25, 2018 6:35 AM
**To:** jgellici@ncc1.org
**Cc:** Randall W. Atkins
**Subject:** RE: [EXTERNAL] Introduction

I look forward to meeting and talking to Randy some time soon.

Doug
Douglas Matheney
Special Advisor to the Secretary
Office of Fossil Energy
Office: (202) 287-6280
Cell: (b) (6)
Doug.Matheney@hq.doe.gov

---

**From:** jgellici@ncc1.org [mailto:jgellici@ncc1.org]
**Sent:** Tuesday, September 25, 2018 9:03 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Randall W. Atkins <rwa@ramacocoal.com>
**Subject:** [EXTERNAL] Introduction

Doug ~
Good to see you yesterday ~ thanks, as always, for your help and guidance on all things NCC!
I wanted to introduce you to Randy Atkins, Chairman & CEO of Ramaco Coal, LLC. Randy had hoped to meet you in Norfolk but alas ... Randy is truly a visionary in terms of advancing new markets for coal ~ I think you'd enjoy getting to know Randy.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

Virus-free. www.avg.com



AMERICAN OVERSIGHT

**********

This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.

**********



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Friday, October 05, 2018 10:14 AM
**To:** Desouza, Shannon (CONTR);Giove, Joseph;Vincent, Kenneth;Matheney, Doug;Loman, Carol (CONTR)
**Cc:** Hrkman, Lou;Daniels, Jarad;Kokkinos, Angelos;Sneed, Michelle;Bossie, Darren;Sarkus, Thomas (NETL)
**Subject:** [EXTERNAL] RE: Sec. Perry Invite ~ NCC Spring 2019 Annual Meeting

Thank you all for your help.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

**From:** Desouza, Shannon (CONTR) [mailto:Shannon.Desouza@Hq.Doe.Gov]
**Sent:** Friday, October 5, 2018 11:22 AM
**To:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>; Vincent, Kenneth <Kenneth.Vincent@Hq.Doe.Gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>
**Cc:** Hrkman, Lou <Lou.Hrkman@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Janet Gellici <jgellici@ncc1.org>
**Subject:** RE: [EXTERNAL] Sec. Perry Invite ~ NCC Spring 2019 Annual Meeting

I let the Secretary's scheduler Deidre know that the invitation has been sent via FedEx. Deidre said they will hold onto it but they will not know what the Secretary will be doing in April for a bit.

Thank you,
Shannon

---

**From:** Giove, Joseph
**Sent:** Thursday, October 04, 2018 4:40 PM
**To:** Vincent, Kenneth <Kenneth.Vincent@Hq.Doe.Gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Desouza, Shannon (CONTR) <Shannon.Desouza@Hq.Doe.Gov>
**Cc:** Hrkman, Lou <Lou.Hrkman@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Janet Gellici <jgellici@ncc1.org>
**Subject:** FW: [EXTERNAL] Sec. Perry Invite ~ NCC Spring 2019 Annual Meeting



AMERICAN OVERSIGHT

FYI...and assistance.

---

**From:** jgellici@ncc1.org <jgellici@ncc1.org>
**Date:** Thursday, Oct 04, 2018, 4:27 PM
**To:** Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>, Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Subject:** [EXTERNAL] Sec. Perry Invite ~ NCC Spring 2019 Annual Meeting

Tom ~ Joe ~
Attaching a letter that's going FedEx today to Secretary Perry inviting him to speak at the NCC's 35th Anniversary 2019 Spring Annual Meeting April 11-12 in Washington, DC ~ I've offered two options – dinner April 11 or Opening Keynote April 12. Would appreciate any and all help you can offer to get him there. Let me know if you need more info.

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

---

Virus-free. www.avg.com

**********
This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.
**********

**********
This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.
**********



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Matheney, Doug
**Sent:** Friday, October 19, 2018 2:02 PM
**To:** Giove, Joseph;Janet Gellici - National Coal Council;Kokkinos, Angelos;Daniels, Jarad;Mollot, Darren;Sneed, Michelle;Bossie, Darren;Loman, Carol (CONTR);Sarkus, Thomas (NETL);Hrkman, Lou
**Subject:** RE: Latest NCC Tracking System

Thank you Joe

---

**From:** Giove, Joseph <Joseph.Giove@HQ.DOE.GOV>
**Date:** Friday, Oct 19, 2018, 4:59 PM
**To:** Janet Gellici - National Coal Council <jgellici@ncc1.org>, Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>, Daniels, Jarad <Jarad.Daniels@hq.doe.gov>, Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>, Matheney, Doug <Doug.Matheney@hq.doe.gov>, Sneed, Michelle <Michelle.Sneed@hq.doe.gov>, Bossie, Darren <Darren.Bossie@hq.doe.gov>, Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>, Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>, Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Subject:** RE: Latest NCC Tracking System

Latest NCC Tracking System attached

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

---

**From:** Giove, Joseph
**Sent:** Friday, October 05, 2018 4:33 PM
**To:** 'Janet Gellici - National Coal Council' <jgellici@ncc1.org>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Loman, Carol (CONTR) <CAROL.LDMAN@HQ.DOE.GOV>; 'Sarkus, Thomas (NETL)' <thomas.sarkus@netl.doe.gov>; Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Subject:** RE: Latest NCC Tracking System

Latest NCC Tracking System attached

--Joe

**Joseph Giove III**
Director of Coal Business Operations



AMERICAN OVERSIGHT

Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

**From:** Giove, Joseph
**Sent:** Friday, September 21, 2018 4:25 PM
**To:** 'Janet Gellici - National Coal Council' <jgellici@ncc1.org>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Subject:** RE: Latest NCC Tracking System

Latest NCC Tracking System attached

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

**From:** Giove, Joseph
**Sent:** Tuesday, September 11, 2018 5:39 PM
**To:** 'Janet Gellici - National Coal Council' <jgellici@ncc1.org>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Subject:** RE: Latest NCC Tracking System

We haven't had an NCC Tracking System in a while since I have been (b) (6) work travel. So, attached is the latest:

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

**From:** Giove, Joseph
**Sent:** Friday, August 24, 2018 11:43 AM



AMERICAN OVERSIGHT

**To:** 'Janet Gellici - National Coal Council' <jgellici@ncc1.org>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Subject:** RE: Latest NCC Tracking System

Whoops, I also meant to add on the Tracking System that Janet and I made significant modifications to the "Script", which is coming together nicely.

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)

---

**From:** Giove, Joseph
**Sent:** Friday, August 24, 2018 11:37 AM
**To:** 'Janet Gellici - National Coal Council' <jgellici@ncc1.org>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Daniels, Jarad <Jarad.Daniels@hq.doe.gov>; Mollot, Darren <Darren.Mollot@HQ.DOE.GOV>; Matheney, Doug <Doug.Matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Loman, Carol (CONTR) <CAROL.LOMAN@HQ.DOE.GOV>; Sarkus, Thomas (NETL) <thomas.sarkus@netl.doe.gov>; Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Subject:** Latest NCC Tracking System

All, attached is the latest NCC Tracking System. **Do we have any updates on the Package still stuck at S-3?** Also, I will be (b) (6) I will be checking my e-mail regularly if anyone has any needs during that period.

Kind regards,

--Joe

**Joseph Giove III**
Director of Coal Business Operations
Office of Fossil Energy
U.S. Department of Energy
19901 Germantown Rd., Room E-136
Germantown, Md. 20874
Work/Cell: (b) (6)



AMERICAN OVERSIGHT

# NCC Tracking List of Important Issues
## 10/19/18

### WebEx on 10/1/18 to Vote on 2 NCC Reports

- Recording of meeting still must be posted on internet
  - Status: Giove has received recording of meeting from Abraham. Due to upgrade of FACADATABASE.GOV website, the recording cannot be uploaded until site is upgraded.

### Membership Packages

-

### Status of NCC Reports

- Advancing U.S. Coal Exports – Official request from Secretary Perry was dated January 7th and was received by NCC on January 18th.
  - Status: As of 10/19, the final report is being compiled by Gellici.
- Optimizing the Existing Coal Fleet – A draft letter requesting the report has been prepared by DOE for the Secretary's signature. The letter requests NCC complete the report by September 30, 2018.
  - Status: As of 10/19, the final report is being compiled by Gellici.
- National Petroleum Council's CCUS/CO2-EOR Report – In September 2017, Secretary Perry requested a report from NPC on CCUS/CO2-EOR asking NPC to work with NCC as a resource in preparation of this report. This CCUS study is owned by NPC.
  - Status #1: From Sept 2017 through September 2018, NCC has reached out to NPC on several occasions without much traction.
  - Status #2: As discussed at the face-to-face meeting on 9/24, Jarad/Steve to follow-up with NPC to see what other actions may be requested of NCC.
- New Markets for Coal – Official request from Secretary Perry was signed on 8/31/18 and requested NCC to complete the study by April 12, 2019.
  - Status: Kick-Off meeting was held on October 16th.

### Miscellaneous

- (b) (5)
  - Status: Progress on this issue should be addressed by engaging Wayne Gordon in GC to determine what actions (if any) he would propose.
- How NCC Gets its Funding – The NCC is currently funded through donations from its members. Discussions have been held on-and-off for years to discuss if that is the best model. Some FACAs are largely/completely funded by the Government. The discussion is being had afresh to see if action(s) should be taken.
  - Status: (b) (5)

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | jgellici@ncc1.org |
| **Sent:** | Monday, October 22, 2018 1:48 PM |
| **To:** | Giove, Joseph;Sarkus, Thomas (NETL);Matheney, Doug;Kokkinos, Angelos;Daniels, Jarad;Bossie, Darren;Mollot, Darren;Sneed, Michelle;Hrkman, Lou;Loman, Carol (CONTR) |
| **Subject:** | [EXTERNAL] NCC Reports |
| **Attachments:** | NCC Advancing U.S. Coal Exports Report FINAL.pdf; Coal Exports Fact Sheet.pdf; Power Reset Fact Sheet.pdf; NCC Power Reset Report FINAL.pdf |

Ladies & Gentlemen ~
The attached reports have been finalized and are being FedEx'd to the Secretary this evening for delivery to his office tomorrow. These versions of the report will be posted to the NCC website as well.

If you have questions, please let me know.

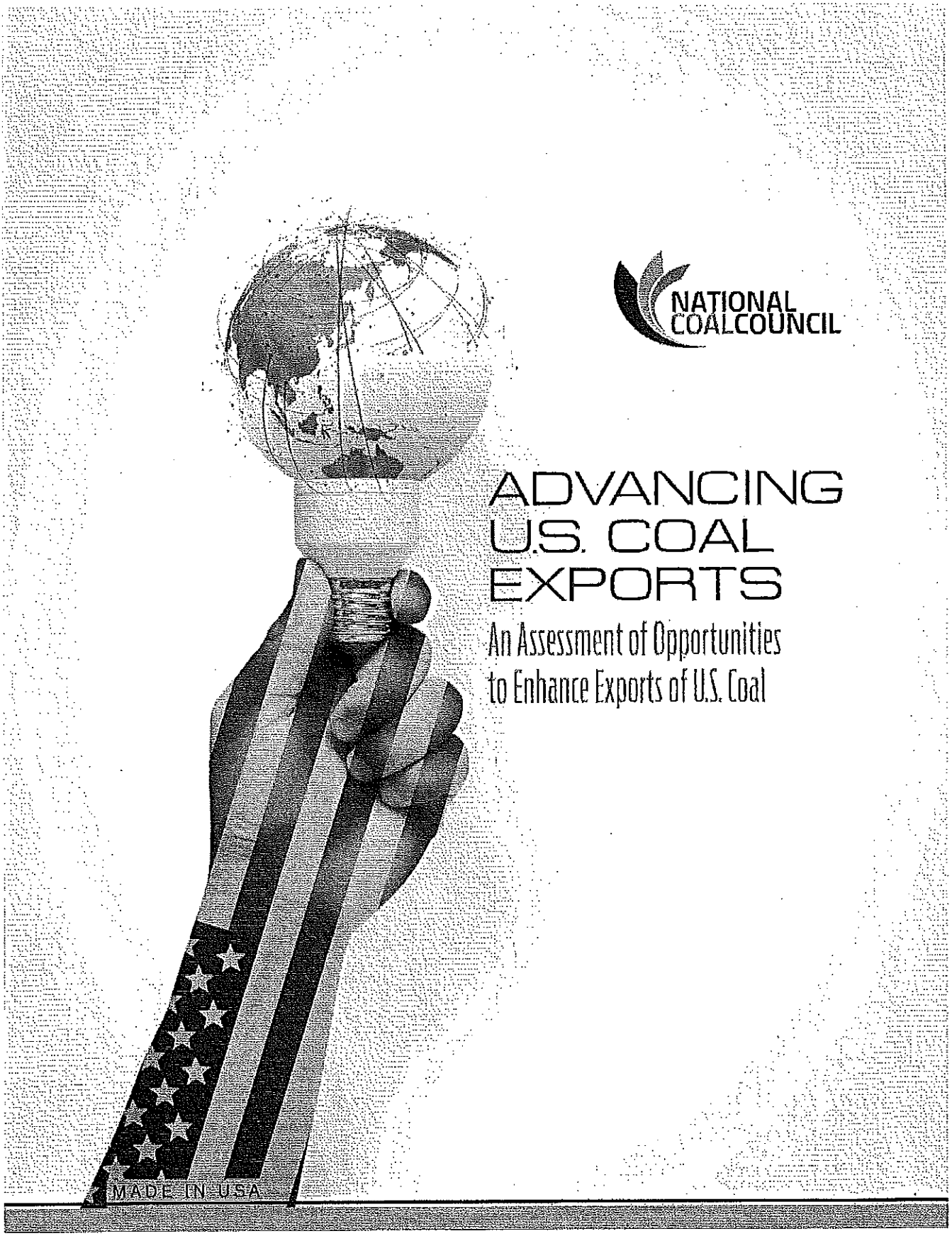
Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

Virus-free. www.avg.com

**********
This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.
**********



AMERICAN OVERSIGHT




NATIONAL COALCOUNCIL

# ADVANCING U.S. COAL EXPORTS

## An Assessment of Opportunities to Enhance Exports of U.S. Coal

AMERICAN OVERSIGHT




# Advancing U.S. Coal Exports

## An Assessment of Opportunities to Enhance Exports of U.S. Coal

**National Coal Council Leadership**
NCC Chair – Deck Slone, Arch Coal
NCC Vice Chair – Danny Gray, Charah Solutions
NCC CEO – Janet Gellici, National Coal Council

**Coal Exports Report Co-Chairs**
Justin Burk, Peabody
David Lawson, Norfolk Southern Corporation

**Report Chapter Leads**
Dan Byers, Global Energy Institute, U.S. Chamber of Commerce
Justin Burk, Peabody
Hans Daniels & Andrew Blumenfeld, Doyle Trading Consultants
David Lawson, Norfolk Southern Corporation
Emily Medine, Energy Ventures Analysis
Andy Roberts, Wood Mackenzie

**Principal Contributing Authors**
Roger Bezdek, MISI
Dan Byers, Global Energy Institute, U.S. Chamber of Commerce
Justin Burk, Peabody
Andrew Blumenfeld, Doyle Trading Consultants
Daniel Connell, Consol Energy, Inc.
Hans Daniels, Doyle Trading Consultants
George Duggan, BNSF Railway
James (Leggett) Kitchins, Norfolk Southern Corporation
David Lawson, Norfolk Southern Corporation
Heath Lovell, Alliance Coal
Emily Medine, Energy Ventures Analysis
Andy Roberts, Wood Mackenzie
Garrett Urban, Norfolk Southern Corporation

**Principal Editors**
Janet Gellici, National Coal Council
Emily Medine, Energy Ventures Analysis

Library of Congress Catalog 2018912055

AMERICAN OVERSIGHT

**Report Subcommittee Members**

**Barbara Altizer, Virginia Coal & Energy Association**
**Duane Ankney, Montana State Senator**
Roger Bezdek, MISI
Andy Blumenfeld, Doyle Trading Consultants
Justin Burk, Peabody
Dan Byers, Global Energy Institute, U.S. Chamber of Commerce
Daniel Connell, Consol Energy, Inc.
Hans Daniels, Doyle Trading Consultants
**George Duggan, BNSF Railway**
Ellen Ewart, Coronado Coal
Mike Ferguson, Metro Ports
Chris Hamilton, West Virginia Coal Association
**Casey Kaptur, RungePincockMinarco Global**
**Holly Krutka, Peabody**
**David Lawson, Norfolk Southern**
**Heath Lovell, Alliance Coal**
Rob McCune, Crounse Corporation
**Emily Medine, Energy Ventures Analysis**
**Betsy Monseu, American Coal Council**
**Clark Moseley, Navajo Transitional Energy**
**Fred Palmer, The Heartland Institute**
Richard Reavey, Cloud Peak Energy
Matt Ricketts, Crounse Corporation
Andy Roberts, Wood Mackenzie
Jennifer Sackson, BNSF Railway
**Todd Savage, Savage Services**
Veronika Shime, National Mining Association
**Deck Slone, Arch Coal**
CJ Stewart, National Tribal Energy Association
**Kemal Williamson, Peabody**
**Xiaoliang Yang, World Resources Institute**

**Reviewers**

**Rick Boyd, Dominion Energy**
**Lisa Bradley, Haley & Aldrich**
**Mike Durham, Soap Creek Energy**

**NCC Members in Bold**

AMERICAN OVERSIGHT




## NCC Coal Policy Committee

**Chair - Holly Krutka**, Peabody
**Vice Chair - F. William Brownell**, Hunton Andrews Kurth LLP

**Tom Alley**, EPRI
**Shannon Angielski**
Carbon Utilization Research Council (CURC)
**Duane Ankney**, State Senator – Montana
**Randall Atkins**, Ramaco Coal, LLC
**Richard Bajura**, West Virginia University
**Shannon Banaga**, TECO Energy Inc.
**Rick Boyd**, Dominion Energy
**Lisa Bradley**, Haley & Aldrich
**Brenda Brickhouse**, TVA
**John Cassady**, NRECA
**Joe Craft**, Alliance Coal, LLC
**Kipp Coddington**, University of Wyoming
**Brad Crabtree**, Great Plains Institute
**David Denton**, Susteon, Inc.
**Katherine Dombrowski**, Trimeric Corporation
**John Duddy**, Axens North America
**George Duggan**, BNSF Railway
**Michael Durham**, Soap Creek Energy
**Ron Eller**, Tinuum Group LLC
**David Flannery**, Steptoe & Johnson, PPLC
**Danny Gray**, Charah Solutions
**Matthew Greek**, Basin Electric Power Coop.
**Mike Holmes**, Lignite Energy Council
**Susan Jackson**, Santee Cooper
**Dennis James**, North American Coal Corp
**Kim Johnson**, Gen2 LLC
**Michael Karmis**, Virginia Tech
**David Lawson**, Norfolk Southern Corporation
**John Long**, Connemara Ltd.
**Heath Lovell**, Alliance Coal, LLC
**Len Marsico**, McGuireWoods, LLP
**Emily Medine**, Energy Ventures Analysis
**Charles McConnell**, Rice University
**Betsy Monseu**, American Coal Council
**Karen Obenshain**, Edison Electric Institute
**Jerry Oliver**, YCI Methanol One, Inc.
**Frederick Palmer**, The Heartland Institute
**Robert Purgert**, Energy Industries of Ohio
**Todd Savage**, Savage Services
**John Schultes**, New Steel International, Inc.
**Connie Senior**, ADA-ES, Inc.
**Sharon Sjostrom**, Advanced Emissions Solutions
**Deck Slone**, Arch Coal
**Michael Sorensen**, Tri-State G&T
**Scott Stallard**, Atonix Digital
**Scott Teel**, Southern Company Operations
**Matt Usher**, American Electric Power (AEP)
**Kemal Williamson**, Peabody
**Gregory Workman**, Dominion Energy Inc.

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

**NCC Overview - 1984|2018**

In the fall of 1984, Secretary of Energy Don Hodel announced the establishment of the National Coal Council (NCC). In creating the NCC, Secretary Hodel noted that "The Reagan Administration believes the time has come to give coal – our most abundant fossil fuel – the same voice within the federal government that has existed for petroleum for nearly four decades."

The Council was tasked to assist government and industry in determining ways to improve cooperation in areas of coal research, production, transportation, marketing and use. On that day in 1984, the Secretary named 23 individuals to serve on the Council, noting that these initial appointments indicate that "the Department intends to have a diverse spectrum of the highest caliber of individuals who are committed to improving the role coal can lay in both our Nation's and the world's energy future."

Throughout its nearly 35-year history, the NCC has maintained its focus on providing guidance to the Secretary of Energy on various aspects of the coal industry. NCC has retained its original charge to represent a diversity of perspectives through its varied membership and continues to welcome members with extensive experience and expertise related to coal.

In 1985, the NCC was incorporated as a 501c6 non-profit organization in the State of Virginia. Serving as an umbrella organization, NCC, Inc. manages the business aspects of running the Council. The leadership of the NCC serves as officers of NCC Inc. and members of the Council serve as NCC Inc. shareholders. The Executive Director of the Council is NCC Inc.'s Executive Vice President and Chief Operating Officer.

Today, the NCC continues to serve as an advisory group to the Secretary of Energy, chartered under the Federal Advisory Committee Act (FACA). The NCC provides advice and recommendations to the Secretary of Energy on general policy matters relating to coal and the coal industry.

The Council activities include providing the Secretary with advice on:

- Federal policy that directly or indirectly affects the production, marketing and use of coal;
- Plans, priorities and strategies to address more effectively the technological, regulatory and social impact of issues relating to coal production and use;
- The appropriate balance between various elements of Federal coal-related programs;
- Scientific and engineering aspects of coal technologies, including emerging coal conversion, utilization or environmental control concepts; and
- The progress of coal research and development.

The principal activity of the NCC is to prepare reports for the Secretary of Energy. The NCC's Coal Policy Committee develops prospective topics for the Secretary's consideration as potential subjects for NCC studies. During its nearly 35-year history, the NCC has prepared more than 35 studies for the Secretary, at no cost to the Department of Energy. All NCC studies are publicly available on the NCC website.

The NCC is a totally self-sustaining organization; it receives no funds from the Federal government. The activities and operations of the NCC are funded solely from member contributions, the investment of Council reserves and generous sponsors.

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

October 22, 2018

The Honorable Rick Perry
U.S. Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary:

On behalf of the members of the National Coal Council (NCC), I am pleased to submit to you, pursuant to your letter dated January 7th, 2018, the report "Advancing U.S. Coal Exports: An Assessment of Opportunities to Enhance Exports of U.S. Coal." Consistent with your request, the report is focused on assessing and prioritizing market, infrastructure and policy measures that can be undertaken to increase export opportunities for U.S. coal. Additionally, the report provides a competitive assessment of U.S. coal export opportunities relative to other supplier nations, as well as an analysis of prospective international markets for U.S. coal.

As domestic demand for coal has softened, coal exports are an increasingly important market sector for U.S. coal producers. U.S. coal exports have been very volatile over the years, ranging from a peak in 2012 of 125 million tons to a low of 39 million tons in 2002. This volatility is attributable to many factors, including fluctuations in market demand, competition from global suppliers and various importing nation constraints, such as policies limiting coal imports and infrastructure restrictions. While many of these variables are outside the control of the U.S. government and industry, there are numerous factors which can be addressed by policymakers and commercial interests to enhance U.S. coal exports.

The competitiveness and growth of U.S. coal exports depends primarily on the ability of U.S. producers to mine and ship coal to end-use markets at an overall delivered cost that is economically competitive with other global coal suppliers and other energy resources. The NCC report highlights opportunities and barriers to coal exports in the areas of U.S. coal production, transportation/shipping, international coal plant financing and trade.

Coal Production. Development and deployment of advanced coal mining and processing technologies to reduce production costs would enhance the competitiveness of U.S. coals in international markets. Federal and state support mechanisms would facilitate continued operation in traditional supply regions and the development of infrastructure projects in non-traditional coal-producing regions in the U.S.

AMERICAN OVERSIGHT

River Transport. Streamlining of funding for the nation's inland waterway system of locks and dam infrastructure would facilitate the cost-efficient flow of U.S. coals to international markets via East and Gulf Coast ports.

Ports & Terminals. Dredging and channel deepening at East and Gulf Coast ports would allow for the accommodation of larger ships, thereby lowering shipping costs and enhancing the delivered economics of U.S. coals in international markets. The development of West Coast export terminals would be enhanced with improved planning and cooperation between federal and state authorities responsible for environmental review/permitting and through reforms to NEPA and related permitting processes. NCC encourages the further study of opportunities to reduce export constraints through development of export terminals on federal properties.

International Coal Plant Financing. Financing of coal facilities overseas is hampered by domestic and international policy barriers at the Export-Import Bank of the U.S. (EXIM), the Overseas Private Investment Corporation (OPIC) and Multilateral Development Banks (MDB) administered by the U.S. Treasury Department.

To facilitate these and other recommendations to enhance U.S. coal exports detailed in the NCC report, we advocate for the establishment of a DOE-led, government-wide Coal Exports Task Force (or Energy Exports Task Force) to monitor and coordinate policy developments relevant to advancing U.S. energy exports. Participants should include all agencies engaged in energy development and international relations, including the U.S. Departments of Energy, Interior, State and Treasury, as well as the U.S. Trade and Development Agency (USTDA), OPIC and the EXIM Bank, among others.

Advancing U.S. exports is a critical component of the nation's efforts to achieve U.S. energy dominance, enhance international energy security and support our allies in eliminating global energy poverty. Thank you for the opportunity to prepare this report. The Council stands ready to address any questions you may have regarding its findings and recommendations.

Sincerely,

Deck L. Slone

Deck Slone
National Coal Council Chair 2018-2019

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# NCC REPORT ACCEPTANCE LETTER

April 10, 2018

The Honorable Rick Perry, U.S. Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary:

Thank you for your letter of January 7th, 2018 requesting that the National Coal Council (NCC) prepare a report on U.S. coal exports. While the delay in officially appointing members to serve on the Council has precluded us from responding to your request earlier, we are now able and eager to undertake the assignment.

On behalf of the members of the NCC, I am pleased to accept your request that the NCC develop a white paper assessing opportunities to advance U.S. coal exports. Activity has already begun on preparing the report which will address the following questions:

- What market, infrastructure and policy measures could be undertaken to increase export opportunities for U.S. coal?
- What global market dynamics present opportunities for increased U.S. coal exports?
- How can U.S. coal capitalize on its advantages and become more competitive in international markets?
- What institutional and regulatory constraints are limiting the advancement of U.S. coal exports?

Justin Burk, Commercial Director for Peabody and David Lawson, Vice President Coal for Norfolk Southern Railroad will serve as co-chairs for this white paper. We will have the report completed by September 13th, 2018.

Thank you for your support of the National Coal Council. We welcome the opportunity to support your and President Trump's vision for our nation's energy future.

Sincerely,

Greg Workman
National Coal Council Chair 2017-2018

AMERICAN OVERSIGHT

# Report Request from Energy Secretary Rick Perry

**The Secretary of Energy**
Washington, DC 20585

January 07, 2018

Mr. Greg Workman
Chair, National Coal Council
1101 Pennsylvania Avenue, NW, Suite 300
Washington, DC 20004

Dear Mr. Workman:

I am writing today to request that the National Coal Council (NCC) develop a white paper assessing opportunities to advance U.S. coal exports.

The white paper should focus on current market, policy, and infrastructure challenges and opportunities that are relevant to advancing U.S. coal resources in international power and industrial markets. The white paper should examine international market opportunities for both metallurgical and thermal coals from the Eastern, Central, and Western coal-producing regions of the U.S. The white paper should also provide a competitive assessment of the coal market supply chain and associated infrastructure, and offer recommendations that address key barriers impeding the export of U.S. coal.

The key questions to be addressed include:

- What market, infrastructure, and policy measures could be undertaken to increase export opportunities for U.S. coal?
- What global market dynamics present opportunities for increased U.S. coal exports?
- How can U.S. coal capitalize on its advantages and become more competitive in international markets?
- What institutional and regulatory constraints are limiting the advancement of U.S. coal exports?

The white paper should be managed under the auspices of the Executive Advisory Board within the NCC. I ask that the white paper be completed no later than March 30, 2018.

Upon receiving this request and establishing your internal working groups, please advise me of your schedule for completing the white paper. The Department looks forward to working with you on this effort.

Sincerely,

Rick Perry

Rick Perry

AMERICAN OVERSIGHT




# Advancing U.S. Coal Exports

## An Assessment of Opportunities to Enhance Exports of U.S. Coal

## Table of Contents


| | |
|---|---|
| Executive Summary | 1 |
| Introduction | 7 |
| Chapter 1. United State Coal Export Landscape | 9 |
| Key Findings | 9 |
| Coal in the United States | 9 |
| Economic Benefits of U.S. Coal Exports | 10 |
| U.S. Coal Exports Overview | 11 |
| U.S. Coal Export Regions | 12 |
| Transportation of U.S. Coal for Export | 14 |
| Railroads | 15 |
| Inland Waterways | 17 |
| Ports | 19 |
| Vessel & Shipping Considerations | 22 |
| Prime Markets for U.S. Coals | 23 |
| Chapter 2. Competitive Assessment | 24 |
| Key Findings | 24 |
| Global Coal Market Supply & Demand | 24 |
| Metallurgical Coal Trade | 26 |
| Thermal Coal Trade | 28 |
| Competitiveness of U.S. Coal with Global Supply | 30 |
| Trends in Export Coal Pricing | 33 |
| Exchange Rates & Price Indexes | 33 |
| Effects of Policy on Global Coal Trade | 35 |
| Chapter 3. Barriers to U.S. Coal Exports | 37 |
| Key Findings | 37 |
| Supply Considerations | 37 |
| Federal Mineral Ownership | 38 |
| Mining Regulation | 39 |
| Support for Traditional Coal Supply Regions | 39 |
| Development of Non-Traditional Coal Supply Regions | 40 |
| Transportation & Shipping Considerations | 40 |
| U.S. East Coast | 40 |
| U.S. Gulf Coast | 41 |
| U.S. West Coast | 42 |
| Funding | 43 |


AMERICAN OVERSIGHT

Institutional & Regulatory Factors 43
Barriers to Coal Export Terminal Development 43
Review & Permitting Process 44
Greenhouse Gas Emissions Considerations 46
Export Facilities on Federal Lands 47
International Coal Plant Financing:
Multilateral Development Banks 47
International Coal Plant Financing: Domestic Entities 50
Export-Import Bank of the United States 50
Overseas Private Investment Corporation 51
U.S. Agency for International Development 51
U.S. Trade & Development Agency 52
Energy Access, Poverty Elimination and Energy Security 53
Trade Barriers 55
Technological Considerations 56
Technological Improvements in Mining 56
Coal Washing & Upgrading 56
Exports of U.S. Advanced Coal Technologies 57

Chapter 4. Conclusions & Recommendations 58
Coal Production 59
River Transport 60
Ports & Terminals 60
Trade & International Relations 61
Economic Development in International Markets 62

Appendices
A. Coal Statistics 63
B. U.S. Coal Exports by State 67
C. Principal U.S. Coal Export Facilities 69
D. Status of Proposed Coal Export Projects 71
E. Global Coal Market Statistics 73
F. Principal Global Suppliers of Metallurgical Coal
– Country Breakdown 75
G. Principal Global Suppliers of Thermal Coal – Country Breakdown 80
H. Competitive Assessment of U.S. vis-à-vis Global Suppliers 85
I. U.S. Thermal & Metallurgical Coal Exports by Destination 89
J. Coal Financing Policies of Key Lending Institutions 90

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# Advancing U.S. Coal Exports

## An Assessment of Opportunities to Enhance Exports of U.S. Coal

## FIGURES & TABLES

**Figures**


Figure 1. Global Coal Reserves
Figure 2. Global Coal Trade
Figure 3. 2017 Eastern Basin Production & Reserves
Figure 4. 2017 U.S. Coal Exports Departing from the 10 Largest Outlets
Figure 5. Overview of North American Rail Network
Figure 6. Primary Class 1 Railroad Corridors
Figure 7. 2017 Eastern Basin Production & Reserves
Figure 8. Major U.S. Ports & Waterways
Figure 9. Major Export Ports for Eastern U.S. Coal
Figure 10. Major U.S. Coal Trade Flows
Figure 11. Metallurgical Coal Imports & Exports
Figure 12. Thermal Coal Imports & Exports
Figure 13. Prompt Month API2 Thermal Coal Price History
Figure 14. Metallurgical Coal Price History
Figure 15. Relationship of U.S. Dollar to Australian Dollar, Euro and Chinese RMB
Figure 16. Chinese Overseas Coal Power Financing Destinations


**Tables**


Table 1. Global Coal Trade – Major Coal Importers & Exporters
Table 2. U.S. Eastern & Interior Coal Basin Exports
Table 3. U.S. Western Coal Basin Exports
Table 4. U.S. Coal Exports by Destination
Table 5. Advantages & Challenges of U.S. Metallurgical Coal vs. Competitive Supply
Table 6. Advantages & Challenges of U.S. Thermal Coal vs. Competitive Supply
Table 7. U.S.-based Entities with a Role in Coal Financing & Export Development


AMERICAN OVERSIGHT




# Advancing U.S. Coal Exports

## An Assessment of Opportunities to Enhance Exports of U.S. Coal

## ACRONYMS

The U.S. ton is a short ton - 2000 pounds; the metric tonne is approximately 2,204.6 pounds. In this report, tonnages are not standardized. "Tons" refer to short tons and "tonnes" refers to metric tonnes.

| | |
|---|---|
| ACCCE | American Coalition of Clean Coal Electricity |
| ADB | Asian Development Bank |
| ASC | Advanced Super Critical |
| AUSC | Advanced Ultra-Super Critical |
| BLM | Bureau of Land Management |
| BNSF | Burlington Northern Santa Fe Railway |
| CAPP | Central Appalachia |
| CEQ | White House Council on Environmental Quality |
| CIF | Costs, Insurance & Freight |
| CSX | CSX Transportation |
| DOE | U.S. Department of Energy |
| DWT | Dead Weight Ton |
| EIA | Energy Information Administration |
| EIS | Environmental Impact Statement |
| EVA | Energy Ventures Analysis |
| EXIM | Export-Import Bank |
| FLPMA | Federal Land Policy Management Act |
| FMV | Fair Market Value |
| FOB/FOBT | Free on Board/Free on Board Trimmed |
| GHG | Greenhouse Gas |
| HELE | High Efficiency Low Emissions |
| HMT | Harbor Maintenance Tax |
| IEA | International Energy Agency |
| ILB | Illinois Basin |
| JUSEP | Japan-U.S. Strategic Energy Partnership |
| LBA | Lease by Application |
| MDB | Multilateral Development Bank |
| MLA | Mineral Leasing Act |
| MSHA | Mine Safety & Health Administration |
| NAPP | Northern Appalachia |
| NCC | National Coal Council |
| NEPA | National Environmental Policy Act |
| NMA | National Mining Association |
| NS | Norfolk Southern Corporation |
| OBOT | Oakland Bulk Oversized Terminal |
| OECD | Organization of Economic Cooperation & Development |
| OPIC | Overseas Private Investment Corporation |
| PRB | Powder River Basin |
| SAPP | Southern Appalachia |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UP | Union Pacific Railroad |
| USAID | U.S. Agency for International Development |
| USTDA | U.S. Trade Development Agency |

AMERICAN OVERSIGHT

# Advancing U.S. Coal Exports

## An Assessment of Opportunities to Enhance Exports of U.S. Coal

**Co-Chairs:**

**Justin Burk, Commercial Director, Peabody**

**David Lawson, Vice President Coal, Norfolk Southern Corporation**

## Executive Summary

Coal is ubiquitous and can be found in nearly every corner of the globe. Recoverable amounts of coal are found and commercially mined in over 50 countries and consumed in more than 70 countries. While significant commercial amounts of coal are exported by many countries, just 10 countries, including the U.S., accounted for over 95% of exports in 2017.

Coal trade is a large and growing business as developing economies electrify and industrialize using the lowest cost fuels available to them. The global market for coal is widespread but currently driven by the large demand in Asia – most notably by China and India.

Key suppliers to the global coal trade have been Australia, Indonesia, Russia, Colombia, South Africa and the U.S. While the U.S. is a major exporter of metallurgical coal, it is generally considered a "swing" supplier with respect to thermal coal. The level of U.S. participation in the global coal trade is a function of its competitiveness with other global suppliers, periodic shortages in the market, fluctuations in demand and macroeconomic factors such as currency exchange rates. There is reason to believe that market demand and plateauing supplies from other sources hold promise for continued growth of U.S. coal exports.

### Value of Coal Exports

The U.S. exceeds all other nations in proven coal reserves. Our nation's abundant, affordable and diverse domestic energy resources underpin our economic prosperity, providing both domestic and export opportunities. Low-cost electricity in the U.S., driven in large part by coal generation, has fueled our commercial and manufacturing sectors, providing us with a competitive advantage in global markets. Our energy abundance has also provided the U.S. with the opportunity to export energy resources, supporting trading partners and emerging nations in efforts to modernize their economies and combat energy poverty, while fostering U.S. economic growth.

Coal exports are an increasingly important market sector for U.S. coal producers. In 2017, coal exports accounted for 12.5% of total U.S. production – the highest level since the early 1980s. These exports contributed $13 billion to the U.S. Gross Domestic Product (GDP) and created, directly and indirectly, 100,000 jobs in the U.S.



AMERICAN OVERSIGHT

## Coal Export Landscape

Coal exports are driven by international thermal and metallurgical coal supply and demand. Thermal coal, also known as steam coal, is used in generating steam to create electricity as well as to provide energy for industrial processes such as cement production. Metallurgical coal, often referred to as coking coal, is used in steel making.

In 2017, U.S. coal exports increased 61% year-over-year to 97 million tons, which was the highest export total since 2014. Non-western ports shipped 87 million tons of coal (89% of total U.S. exports) in 2017.

Europe and Asia account for the vast majority of all U.S. coal exports. The U.S. has historically been a key coal supplier to Europe due to the proximity of U.S. East Coast and Gulf Coast terminals to Europe, longstanding business relationships between the U.S. and Europe, and desirable coal qualities that are readily consumed in Europe. Asia's growing demand for coal represents a significant growth opportunity for U.S. coal exports.

Major direct competitors to U.S. metallurgical coal exporters are Australia, Russia and Canada. These countries compete with the U.S. for the metallurgical coal trade market, calculated to be between approximately 300 and 325 million tonnes in 2017. Over time, Mozambique may develop as a major source. The supply into the export market is fungible and can shift between sources.

The major competitors for U.S. thermal coal exporters are market-dependent. In Europe, the primary U.S. competitors are Russia and Colombia. Australia is a major competitor in the Asian market. South Africa, because of its location, is a swing supplier between the European and Asian markets. The U.S. would be a major competitor to Indonesia if additional exports of Powder River Basin coal to Asia were realized given that many customers desire supply diversity, heightening the U.S.'s position as a stable export supplier.

U.S. coal exports have been very volatile over the years, ranging from a peak in 2012 of 125 million tons to a low of 39 million tons in 2002. This volatility is attributable to many factors, including fluctuations in market demand, competition from global suppliers and various importing nation constraints, such as coal-import limiting policies and infrastructure. While many of these variables are outside the control of the U.S. government and industry, there are numerous factors which can be addressed by policymakers and commercial interests to enhance U.S. coal exports.

## Supply Considerations

There are ample reserves of U.S. coal to allow for an increase in exports. Regional supply/demand considerations may limit what is immediately available to export versus what can be developed for long-term export markets. The barriers to the development of U.S. coal reserves for the export market are generally regional in nature. The most significant are related to federal mineral ownership, mining regulations, support for traditional coal supply regions and the development of non-traditional coal supplies.



AMERICAN OVERSIGHT

Another important consideration on the supply side is ensuring that the industry is keeping up with the potential technological improvements in mining and preparation that would allow U.S. producers to better compete with other producing countries. The industry has identified areas where it can potentially reduce operating costs with capital investments, including a move to driverless vehicles, extending advanced technology to continuous miners, state-of-the-art digital technology, real-time analytics and optimization, advanced control systems, artificial intelligence and machine learning, and predictive maintenance.

Coal washing and upgrading technologies are designed to reduce the amount of mineral matter and/or moisture in coal, which can be particularly important for coal slated for export. Transporting coal with a higher heat content could reduce transportation costs on a quality adjusted evaluated basis – improving the value proposition for some U.S. coal compared to the international market.

Some international markets for U.S. coals are restricted or could become restricted due to coal quality constraints or lack of environmental technologies/controls at end-user facilities. It would be beneficial to continue U.S. efforts to research, develop and deploy advanced coal technologies that could be retrofit to existing plants and/or adopted in new plant construction that would enable other nations to make use of a wider range of U.S. coals.

## Transportation & Shipping Considerations

While generally robust, the nation's coal transportation and shipping network would benefit from various infrastructure improvements.

On the East Coast, channel deepening would improve navigational efficiencies, allow safe passage of vessels in and out of the harbor, and improve accommodation of the existing fleet. Dredging and maintaining key shipping channels to accommodate larger, more cost-effective vessels and maximize navigational efficiencies would help to enhance the competitiveness of U.S. coal exports.

On the Gulf Coast, the inland waterways system of locks and dams requires constant maintenance. The lack of regular dredging has significantly restricted movements on the inland waterways, especially during periods of low water.

On the West Coast, the limited capacity of export terminals has greatly limited the ability to export western U.S. coals. The environmental review and permitting process to approve the development of coal export facilities is unnecessarily slow and cumbersome. Because objections to export facilities are often driven by fundamental and philosophical opposition to the production and use of coal, as well as the divergent approaches between the Federal government and state/local entities, policy reforms recommended within this report may not be sufficient to reduce uncertainties in a manner that enables projects to move forward. Further study is warranted into the long-term potential to reduce export constraints through the development of export terminals on Federal properties that would benefit from a streamlined and simplified review and permitting process.



AMERICAN OVERSIGHT

EXT-18-2615-G-000227

## Institutional and Regulatory Considerations

With more than 900 gigawatts (GW) of coal capacity placed into service worldwide since 2000, and over 600 GW planned or under construction, the potential for U.S. thermal coal exports to supply steadily growing international demand is significant. However, the inability for the U.S. and Multilateral Development Banks (MDB) to support these projects may prevent this potential from being realized.

In response to the void created by U.S. and MDB funding prohibitions, China, Japan, Korea and other countries have stepped in to provide financial support for – and outsized influence over – continued coal development. These circumstances not only place the U.S. at a disadvantage by limiting the potential for U.S. coals and plant technologies to supply international markets, in many cases they result in inferior environmental controls.

A number of domestic entities also have a potential role in supporting continued development of coal-fired power plants overseas. The Export-Import Bank of the United States (EXIM Bank) is the official export credit agency of the U.S. government. In 2013, the EXIM Bank adopted guidelines prohibiting support for projects associated with coal mining or electricity generation except in rare circumstances. The Bank followed this policy by leading a coalition of international export credit agencies to sign an agreement under the OECD committing to the same prohibitions.

The Overseas Private Investment Corporation (OPIC) is charged with mobilizing private capital to help foster economic development in emerging economies, and in doing so, advance U.S. foreign policy objectives. While OPIC's mission and focus makes it well-suited for supporting foreign policy objectives by enhancing opportunities for U.S. coal exports, in 2009, a legal settlement with non-governmental organizations committed OPIC to a cap on greenhouse gas emissions from its portfolio of investments that was then codified by Congress in appropriations legislation later that year. As a practical matter, these restrictions have effectively barred OPIC from supporting coal-related projects.

## Trade Barriers

Increasing coal exports has the potential to improve the U.S. balance of trade while also providing a boost to coal producers facing uncertainty in domestic markets. Escalating trade tensions are a serious concern that could result in significantly restricted markets for U.S. coal. In addition to China, a number of other countries have initiated retaliation measures to U.S.-imposed tariffs on steel and aluminum imports, and at least one – Turkey – has included coal among the list of targeted U.S. products. Beyond specific barriers such as tariffs, the general ongoing friction on trade issues threatens to reduce the willingness of U.S. trade partners to enter into agreements to buy U.S. energy resources.

Meanwhile, a number of key markets have long imposed unfair tariffs on U.S. coal imports. These artificial costs exacerbate the geographical disadvantage of U.S. coal exports to Asia and impact the competitiveness of deliveries to the region. U.S. government efforts to reduce or eliminate these tariffs would facilitate increased coal export opportunities.



AMERICAN OVERSIGHT

EXT-18-2615-G-000228

Ultimately, while the potential for current tensions to negatively impact U.S. coal is high, heightened attention to global trade issues also presents an opportunity for U.S. negotiators to expand market access for U.S. coal. Efforts by the DOE, U.S. trade negotiators and diplomatic officials to actively encourage such purchases and undertake dedicated steps to identify and pursue bilateral and multilateral opportunities throughout the world would also facilitate opportunities for expanded U.S. coal exports.

## National Coal Council Recommendations

The competitiveness and growth of U.S. coal exports depends primarily on the ability of U.S. producers to mine and ship coal to end-use markets at an overall evaluated delivered cost that is economically competitive vis-à-vis other global coal suppliers and vis-à-vis other energy sources. Numerous opportunities exist to enhance the competitiveness of U.S. coal exports at every link in the coal supply chain and by addressing various trade and regulatory barriers.

NCC's primary strategic recommendations are as follows; tactics for achieving these objectives are detailed in Chapter 4 of the report.

- **Coal Production.** Deploy advanced coal mining and processing technologies to reduce production costs, thus making U.S. coals more competitive in international markets. Enhance U.S. coal mining operations with the greatest export potential in both traditional and non-traditional coal supply regions.
- **River Transport.** Streamline the funding to the nation's inland waterways system of locks and dam infrastructure to facilitate the cost-efficient flow of U.S. coals to international markets via U.S. East and Gulf Coast ports.
- **Ports & Terminals.** Enhance coal export port and terminal capacity on the U.S. Atlantic, Gulf and West coasts.
- **Trade and International Relations.** Eliminate policy and technology barriers to the deployment of advanced coal facilities in international markets. Additionally, capitalize on trade opportunities, assessing policies and approaches that inhibit or promote U.S. trade and U.S. coal exports.
- **Economic Development in International Markets.** Support efforts to advance economic growth in international markets and the global development of advanced coal technologies, as well as the elimination of regulatory and institutional barriers to the deployment of coal-fired facilities worldwide.

Finally, to facilitate execution of the recommendations in this report, NCC recommends establishing a DOE-led, government-wide Coal Exports Task Force (or Energy Exports Coordination Task Force) to monitor and coordinate policy developments relevant to advancing coal exports. Participants should include all agencies engaged in energy development and international relations, including the U.S. Departments of Energy, Interior, State and Treasury, as well as USTDA, OPIC and the EXIM Bank, among others.



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

## Introduction

Coal is ubiquitous and can be found in nearly every corner of the globe. Recoverable amounts of coal are found and commercially mined in over 50 countries and consumed in more than 70 countries.[i] Global coal production totaled 7.73 billion tonnes[1] in 2017.[ii] Coal's low cost creates significant demand for its use in both manufacturing and electricity production.

A vibrant global export/import trade flow has developed reaching over 1.3 billion tonnes in 2017 according to the International Energy Agency (IEA).[iii] While significant commercial amounts of coal are exported by many countries, just 10 countries, including the U.S., accounted for over 95% of exports in 2017.[iv]

Thus, the geopolitics of coal is born – the geography of coal sources and consumption centers, married by the trade flow that enables a coal market to flourish, and influenced by the complimentary and sometimes competing regulatory and policy impacts of individual governments. Logistics, coal quality, economics and government policy define that coal trade flow, the large majority of which is accomplished using seaborne methods.

Coal trade is a large and growing business as developing economies electrify and industrialize using the lowest cost fuels available to them. The global market for coal is widespread but currently driven by the large demand in Asia – most notably by China and India which in recent years have experienced a major coal supply crunch. Both countries have used imports to bridge the gap between domestic supply and demand, a phenomenon that is likely to continue.

Key suppliers to the global coal trade have been Australia, Indonesia, Russia, Colombia, South Africa and the U.S. While the U.S. is a major exporter of metallurgical coal, it is generally considered a "swing" supplier with respect to thermal coal[2]. The level of U.S. participation in the global coal trade is a function of its competitiveness with other global suppliers, periodic shortages in the market, fluctuations in demand and macroeconomic factors such as currency exchange rates. There is reason to believe that market demand and plateauing supplies from other sources hold promise for continued growth of U.S. coal exports.

The National Coal Council's (NCC) *Advancing U.S. Coal Exports* report has been undertaken at Secretary Perry's request to assess opportunities to advance exports of U.S. coal. This report examines international markets for both thermal and metallurgical coal, provides a competitive assessment of U.S. coal export potential vis-à-vis global suppliers, and addresses key barriers impeding the export of U.S. coal.

---

[1] The U.S. ton is a short ton which is 2000 pounds; the metric tonne is approximately 2,204.6 pounds. In this report, tonnages are not standardized. "Tons" refer to short tons and "tonnes" refers to metric tonnes.

[2] Thermal coal, also called steam coal, is used for electricity production. Metallurgical coal is used for coking in steel production.



AMERICAN OVERSIGHT

## Table 1. Global Coal Trade[v]

Major Coal Exporters (Million Tonnes)

| | 2015 | 2016 | 2017p |
|---|---|---|---|
| Indonesia | 368.0 | 372.9 | 390.6 |
| Australia | 392.3 | 389.3 | 378.9 |
| Russian Federation | 155.2 | 171.1 | 189.7 |
| U.S. | 67.1 | 54.7 | 88.0 |
| Colombia | 72.8 | 83.3 | 86.1 |
| South Africa | 75.8 | 69.9 | 71.0 |
| Mongolia | 14.7 | 24.1 | 33.4 |
| Canada | 30.5 | 30.3 | 31.1 |
| Kazakhstan | 31.2 | 26.0 | 27.1 |
| Netherlands | 36.6 | 34.6 | 24.4 |
| Other | 60.8 | 70.7 | 50.0 |
| **OECD Americas** | **98.4** | **85.9** | **119.9** |
| **OECD Asia Oceania** | **393.7** | **390.5** | **380.1** |
| **OECD Europe** | **54.9** | **50.7** | **36.4** |
| **OECD Total** | **547.0** | **527.1** | **536.4** |
| Africa + Middle East | 81.5 | 80.0 | 83.5 |
| Other Asia Oceania | 414.4 | 437.4 | 445.3 |
| Other Europe + Eura | 188.2 | 198.4 | 218.3 |
| Other Americas | 73.7 | 84.1 | 86.7 |
| **Non- OECD Total** | **757.8** | **799.9** | **833.8** |
| **World** | **1,304.8** | **1,327.0** | **1,370.2** |

Major Coal Importers (Million Tonnes)

| | 2015 | 2016 | 2017p |
|---|---|---|---|
| PR of China | 204.1 | 255.6 | 271.1 |
| India | 212.1 | 193.6 | 208.3 |
| Japan | 189.3 | 186.0 | 187.5 |
| Korea | 134.0 | 134.5 | 148.2 |
| Chinese Taipei | 64.8 | 65.6 | 67.6 |
| Germany | 54.5 | 27.8 | 48.0 |
| Netherlands | 57.1 | 49.5 | 40.3 |
| Turkey | 34.0 | 36.2 | 38.3 |
| Malaysia | 25.5 | 27.2 | 31.5 |
| Russian Federation | 24.1 | 24.0 | 29.0 |
| Other | 305.9 | 288.3 | 317.1 |
| **OECD Americas** | **35.4** | **35.1** | **36.1** |
| **OECD Asia Oceania** | **334.8** | **329.7** | **344.8** |
| **OECD Europe** | **263.6** | **237.8** | **234.0** |
| **OECD Total** | **633.8** | **602.6** | **614.9** |
| Africa + Middle East | 14.4 | 15.2 | 14.2 |
| Other Asia Oceania | 583.7 | 628.4 | 674.9 |
| Other Europe + Eurasia | 47.3 | 46.7 | 56.4 |
| Other Americas | 26.2 | 25.3 | 26.6 |
| **Non- OECD Total** | **671.6** | **715.6** | **772.1** |
| **World** | **1,305.4** | **1,318.2** | **1,387.0** |

Source: IEA, 2018 Coal Information Overview



AMERICAN OVERSIGHT

EXT-18-2615-G-000232

## Chapter 1. United States Coal Export Landscape

### Key Findings – Chapter 1

- **U.S. coal exports provide significant economic benefits to the nation in terms of direct and indirect jobs, as well as associated economic activity that enhances the U.S. economy.**
- **U.S. reserves of both thermal and metallurgical coal are vast and can support both U.S. domestic needs and the expanding international market demand.**
- **While robust in many aspects (rail network, East and Gulf Coast port capacity), U.S. coal export infrastructure would be enhanced with improvements such as deepening of U.S. East and Gulf Coast ports to accommodate larger, more economical vessels, regular dredging and maintenance of inland waterways channels, and the addition of export port capacity on the U.S. West Coast.**

### Coal in the United States

The United States exceeds all other nations in proven coal reserves. Recoverable reserves of coal in the U.S. exceed 250 billion tonnes and are estimated to last more than 300 years at current usage rates.[vi]

**Figure 1. Global Coal Reserves**

| Country | Million tonnes | Share |
|---|---|---|
| U.S | 258,709 | 25.0% |
| Russia | 160,364 | 15.5% |
| Australia | 144,918 | 14.0% |
| China | 139,919 | 13.5% |
| India | 97,728 | 9.4% |
| Germany | 36,100 | 3.5% |
| Ukraine | 34,375 | 3.3% |
| Poland | 25,811 | 2.5% |
| Kazakhstan | 25,605 | 2.5% |
| Indonesia | 22,598 | 2.2% |
| Other | 88,885 | 8.6% |
| Total | 1,035,012 | 100.0% |

Source: BP Statistical Review of World Energy, June 2017

In 2017, 1,200 mines in the U.S. produced 774 million tons of coal, more than 86% of which was used for domestic power generation.[vii] In 2017, U.S. coal was mined in 25 states; 60% west of the Mississippi River and 40% in the east.[viii] (See Appendix A for an overview of coal production, reserves, consumption, exports, imports and price indicators.)



AMERICAN OVERSIGHT

**Economic Benefits of U.S. Coal Exports**

Our nation's abundant, affordable and diverse domestic energy resources underpin our economic prosperity, providing both domestic and export opportunities in support of the Trump Administration's American Energy Dominance objectives.[ix] Low-cost electricity in the U.S., driven in large part by coal generation, has fueled our commercial and manufacturing sectors, providing us with a competitive advantage in global markets. Our energy abundance has also provided the U.S. with the opportunity to export energy resources, supporting trading partners and emerging nations in efforts to modernize their economies and combat energy poverty, while fostering U.S. economic growth.

As domestic demand for coal has softened, coal exports are an increasingly important market sector for U.S. coal producers. In 2017, coal exports accounted for 12.5% of total U.S. production – the highest level since the early 1980s. These exports contributed $13 billion to the U.S. Gross Domestic Product (GDP) and created, directly and indirectly, 100,000 jobs in the U.S.[x] The economic contribution of coal exports extends well beyond the activities conducted at mine sites and includes employment related to downstream transportation that moves coal from mines to ports, as well as the port services that prepare and load the coal for shipment abroad, and other businesses throughout the economy that are supported by coal export activity.

In 2017, workers employed in coal-export related businesses (coal mining, transportation, ports and shipping) earned an annual average of $101,800 in wages and benefits, compared to the U.S. average of $68,400. In coal-dependent regions, coal mining jobs are among the best paying. For example, in Belmont County, Ohio the average weekly wage of a service job is about $600, whereas coal miners in Belmont County make an average of nearly $1,700 per week – nearly three times as much.[xi]

The jobs created by coal exports are highly concentrated in several states, including West Virginia – 16,730 jobs, Virginia – 13,480 jobs, Pennsylvania – 8,740 jobs, and Alabama – 8,630 jobs.[xii] While the economic impacts of coal exports in the U.S. are relatively small, for certain regions they are very significant. For example, in 2017 in West Virginia coal exports accounted for 3% of state GDP and 2.5% of total employment, and for much higher percentages in specific West Virginia counties. The 2017 West Virginia unemployment rate was 5.3%. Absent the jobs created by coal exports, the unemployment rate would have been 7.5% – nearly 50% higher.[xiii]

In 2017, Ukraine began purchasing U.S. thermal coal mined in Pennsylvania. This partnership was formed in response to Ukraine's desire to diversify its energy supply; the U.S. is providing Ukraine with a secure and competitive energy source.[xiv] Pennsylvania coal exports to Ukraine created 455 coal-related jobs in the state and over 600 jobs in U.S. as a whole.



AMERICAN OVERSIGHT

While these jobs are not significant at the state or national level, they are important for the counties of Luzerne, Northumberland and Schuylkill. For example, the 216 jobs created in Schuylkill County reduce the number of unemployed in the county by 5.5%, from 3,900 to 3,684, and reduce the unemployment rate from 5.8% to 5.5%. There are 2,377 total coal-related jobs in Schuylkill County, which represents about 4% of total county employment. Absent these coal-related jobs, the county unemployment rate would be 9.3% instead of 5.8%.[xv]

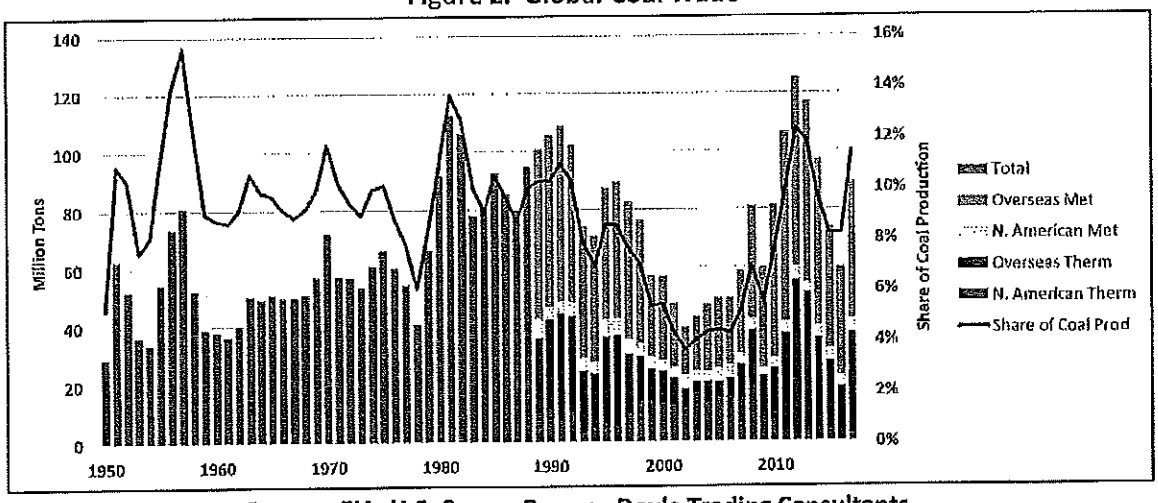
Coal and coal exports are disproportionately significant to specific sectors. For example, in 2017 coal accounted for 33% of originated tonnage for U.S. Class I railroads, far more than any other commodity, and comprised 15% of rail revenues.[xvi] Railroads transport over 70% of U.S. coal and derive more revenues from coal than from almost any other commodity – more than 10% of revenues transporting 523 million tons in 2017.[xvii] Coal exports are also very important to U.S. railroads, and a large portion of U.S. coal exports travels by rail. In 2017, coal exports accounted for about $1 billion in railroad revenues.

## U.S. Coal Exports Overview

Coal exports are driven by international thermal and metallurgical coal supply and demand. Thermal coal, also known as steam coal, is used in generating steam to create electricity as well as to provide energy for industrial processes such as cement production. Metallurgical coal, often referred to as coking coal, is used in steel making.[xviii]

In 2017, U.S. coal exports increased 61% year-over-year to 97 million tons, which was the highest export total since 2014. Non-western ports shipped 87 million tons of coal (89% of total U.S. exports) in 2017. Of these, 64% were metallurgical exports and 36% were thermal.[xix]

**Figure 2. Global Coal Trade**




**Source: EIA, U.S. Census Bureau, Doyle Trading Consultants**



AMERICAN OVERSIGHT

**U.S. Coal Export Regions**

Coal exports vary by state of origin. In 2017, for example West Virginia had the most coal exports with 34 million tons. There were six states with at least five million tons of coal exports in 2016. (See Appendix B for a list of U.S. coal exports by state and the top U.S. coal exporting companies.)

There are three primary coal regions recognized in the U.S. – Eastern, Interior and Western. For the purposes of this report, the Interior is grouped into the Eastern region.[xx] (See Appendix A for map of U.S. coal production regions.)

**Eastern Region.** Eastern basin mines are typically characterized by smaller mining complexes. While a majority of the 940 mines are surface mines, on a volume basis, 67% of production comes from underground mining. In 2017, 72% of export coal originates from Appalachian basins, while 13% of export coal originates from the Interior.

The Eastern/Interior basins are comprised of Northern Appalachia (NAPP), Central Appalachia (CAPP), Southern Appalachia (SAPP), and the Illinois Basin (ILB). Each basin differs in geography, coal quality, and operating characteristics.

**Table 2: U.S. Eastern & Interior Coal Basin Exports**

| Basin | 2017 Production (million tons) | Active Mines (Dec 2017) | Export Tons % | States | Primary Export Markets |
|---|---|---|---|---|---|
| NAPP | 107.2 | 318 | 24% | PA, OH, N-WV | Both Thermal and Met |
| CAPP | 78.5 | 431 | 38% | S-WV, TN, E-KY, VA | Primarily Met, with Some Thermal |
| SAPP | 12.9 | 47 | 10% | AL | Met |
| ILB | 103.2 | 124 | 13% | IL, IN, W-KY | Thermal |

**Source: U.S. Mine Safety & Health Administration (MSHA)**

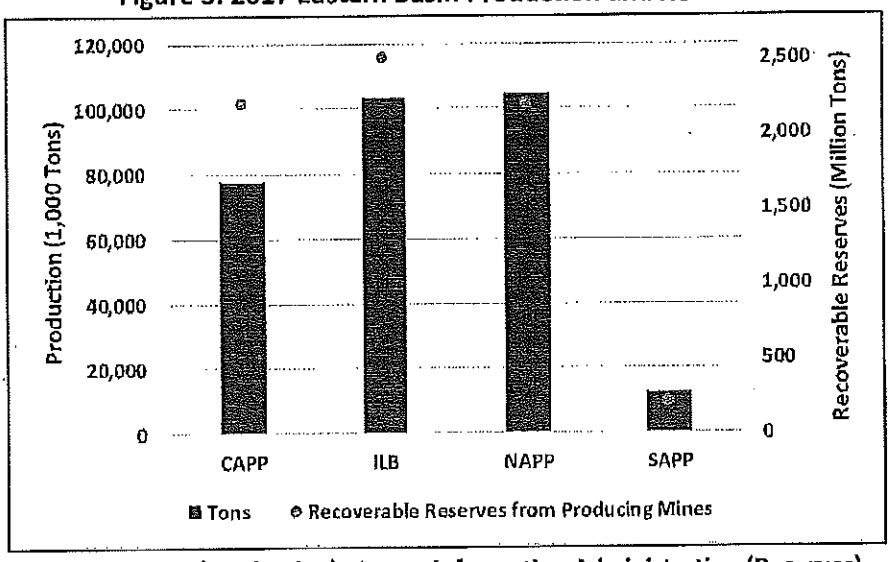
Production volume and capacity differs within each of the Eastern/Interior basins. Access to total reserves in each basin is limited by property rights and are subject to obtaining mining permits. NAPP and ILB have the highest current production, as well as the greatest amount of reserves.



AMERICAN OVERSIGHT

EXT-18-2615-G-000236

**Figure 3: 2017 Eastern Basin Production and Reserves**




**Source: MSHA (Production), Energy Information Administration (Reserves)**

Eastern/Interior Export Corridors

The primary export corridors from eastern basins are as follows:

- **Northern Appalachia to Baltimore (21% of 2017 export volumes)** – Primarily thermal coals from western PA, OH and Northern WV are transported to Baltimore by rail. Metallurgical coal is also produced in and shipped from this region as well as in central PA. Some Central App coal may make its way to this outlet as well along with anthracite from northeast PA, which sometimes finds an outlet in Philadelphia ports.
- **Central Appalachia to Hampton Roads (36% of 2017 export volumes)** – CAPP coals primarily move east by rail to the export terminals in the Port of Hampton Roads. The bulk of the coal exports in 2017 (84%) were metallurgical, which is not surprising because the strong metallurgical coal pricing in 2017 resulted in all parties in the supply chain giving preference to metallurgical coals.
- **Illinois Basin to New Orleans (13% of 2017 export volumes)** – ILB origins can ship coals through the U.S. Gulf directly by rail or by barge due to close proximity to the inland waterway system, The availability of in-stream loading provides an attractive alternative for barge movements. Coals from other regions are also exported through the U.S. Gulf when there is congestion at the U.S. East Coast terminals.
- **Southern Appalachia to Mobile (10% of 2017 export volumes)** – Southern Appalachian basins typically produce very high-quality metallurgical coals that are primarily transported by rail to Mobile for export, but there are some river alternatives.
- **Central Appalachia and Northern Appalachia to Great Lakes Terminals (5% of 2017 export volumes)** – Primarily metallurgical coals from both CAPP and NAPP origination move by rail to Great Lake terminals for use in Canadian coke/steel manufacturing.



AMERICAN OVERSIGHT

**Western Region.** There are 65 coal mines in the western basins producing thermal coal. While this is less than 10% of the total mines in the U.S., they represent 60% of tons produced because of the large mines in the Powder River Basin (PRB).[xxi] The two primary basins in the western U.S. include the PRB, with its large surface mines, and the Rockies, which is a somewhat diverse set of mines operating in Colorado, Utah and Montana, with a combination of surface and underground mines.

**Table 3. U.S. Western Coal Basins Exports**

| Basin | Export Tons | States | Primary Export Markets |
|---|---|---|---|
| PRB | 5.1 million | MT, WY | Thermal |
| Rocky Mountain | 12.8 million | CO, UT, MT | Thermal |

**Source: EVA Coal Trade Report, U.S. Department of Commerce**

At one time, Alaska exported considerable tonnage from the Usibelli mine to Korea and elsewhere. The coal moved through the Seward Terminal which was closed in 2016. In 2015, production started from the Eagle Pass mine in Texas which was developed to supply the Carbon I and II plants in Mexico. The coal is delivered by rail to the plants which are located just south of the U.S.-Mexico border. In 2017, the mine produced 2.4 million tons.

**Western Export Corridors**

The primary export corridors from western basins are as follows:

- **Powder River Basin and Montana to British Columbia, Canada (Westshore Terminal)** – Thermal coal from the PRB and Montana are transported via rail to Westshore and other terminal in British Colombia.
- **Rocky Mountain Basin to California (Richmond, Stockton and Long Beach)** – Thermal coal from mines in Colorado and Utah are transported to U.S. West Coast terminals by rail.
- **Rocky Mountain Basin to Sonora, Mexico (Guaymas)** – Thermal coal from mines in Utah have recently begun moving to a terminal facility at Guaymas.

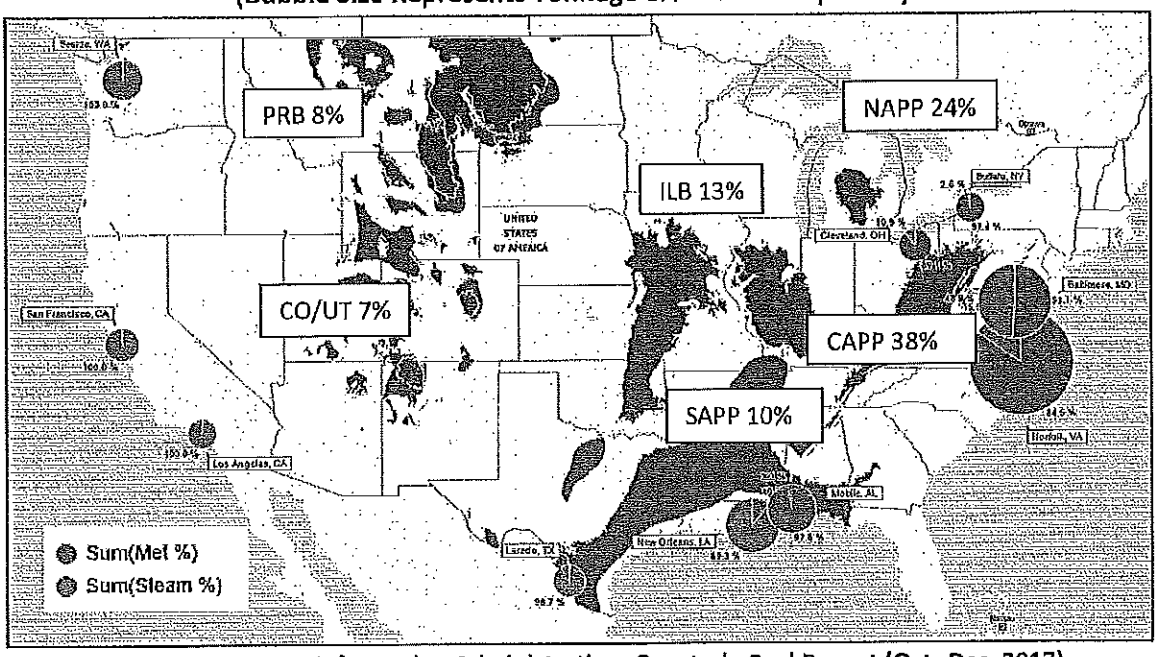
## Transportation of U.S. Coal for Export

The primary shipping considerations for U.S. export coal are the availability of rail and barge transport to move coal to the appropriate export terminals and the availability of terminal capacity to load vessels of the appropriate size. Rail transports primarily to eastern, western and Great Lakes ports, while barge utilizes inland waterways to U.S. Gulf Coast terminals. Ten (10) ports account for 98% of U.S. coal export traffic. Additionally, the type of coal (metallurgical or thermal) exported from specific terminals is dictated by the type of coal produced in nearby basins.



AMERICAN OVERSIGHT

**Figure 4: 2017 U.S. Coal Exports Departing from the 10 Largest Outlets**
**(Bubble Size Represents Tonnage & % of Coal Exported)**




**Source: U.S. Energy Information Administration, Quarterly Coal Report (Oct.-Dec. 2017)**
**Seattle, WA and Laredo, TX outlets are port and rail transfer points.**

## Railroads

Coal and railways have been interlinked since the 1800s, and many of the first U.S. railways were built specifically for coal. Coal traffic increased and evolved into the primary source of revenue for railroads, and routes serving the mines became some of the heaviest built and busiest lines in the country.[xxii] While rail coal volumes have declined in recent years, coal remains a crucial commodity for the U.S. rail network.[xxiii]

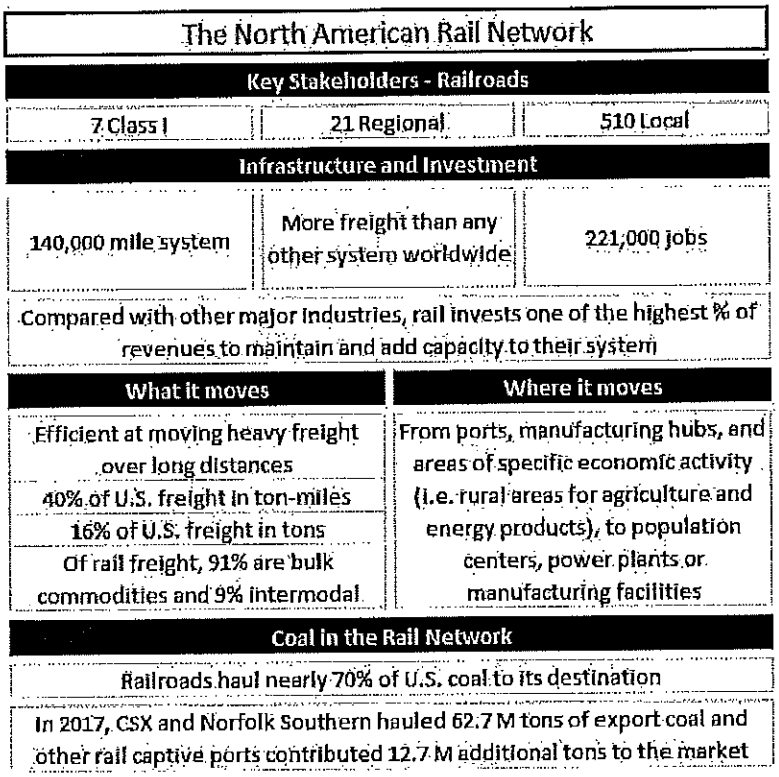
Various factors come into play regarding rail capacity and performance as it relates to handling the variable export market. These include:

- Matching railroad owned assets (locomotives, cars, staffing, etc.) with demand, and accommodating fluctuating coal export market demand with that of rail resources needed for other industry supply chains,
- Physical infrastructure, which affects routing, line capacity and length of haul, and requires significant investment/maintenance,
- Geography and terrain, which determines accessibility, train speed and size, and the power necessary to move trains that increases naturally with grade, and
- Corridor and shared asset restrictions, which may place constraints on train length, weight and the number of trains that may move over a defined timeframe.



AMERICAN OVERSIGHT

**Figure 5. Overview of North American Rail Network[3]**




**Sources: CSX[xxiv] and Norfolk Southern[xxv]**

Eastern coals move to ports in established rail corridors that have a history of following export volumes. The primary rail operators in the east are the CSX Corporation (CSX) and Norfolk Southern Railroad (NS). These two carriers service all of the Appalachian basins, providing the primary outlet to export markets for eastern coals. The primary rail operators in the west are Burlington Northern Santa Fe (BNSF) and Union Pacific (UP). The PRB mines as well as the large Signal Peak mine in Montana that are the predominant sources of western coal exports move via the BNSF to the Westshore Terminal and other Canadian terminals in British Columbia. UP transports coal from mines in Colorado and Utah to export facilities in California and Mexico.

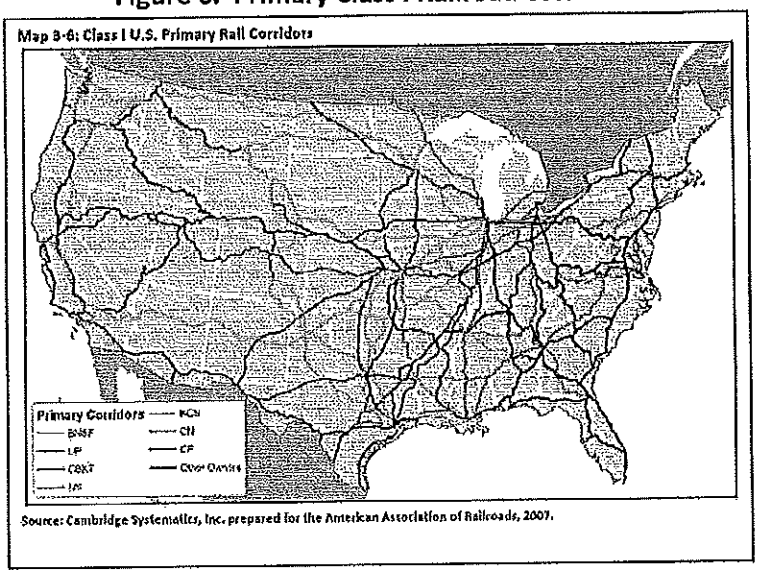
[3] Class 1 railroads are designated as such by size criteria as defined by the Surface Transportation Board. There are seven Class I railroads including BNSF, Canadian National, Canadian Pacific, CSX, Kansas City Southern, NS and UP.



AMERICAN OVERSIGHT

EXT-18-2615-G-000240

**Figure 6. Primary Class I Railroad Corridors**




**Inland Waterways**

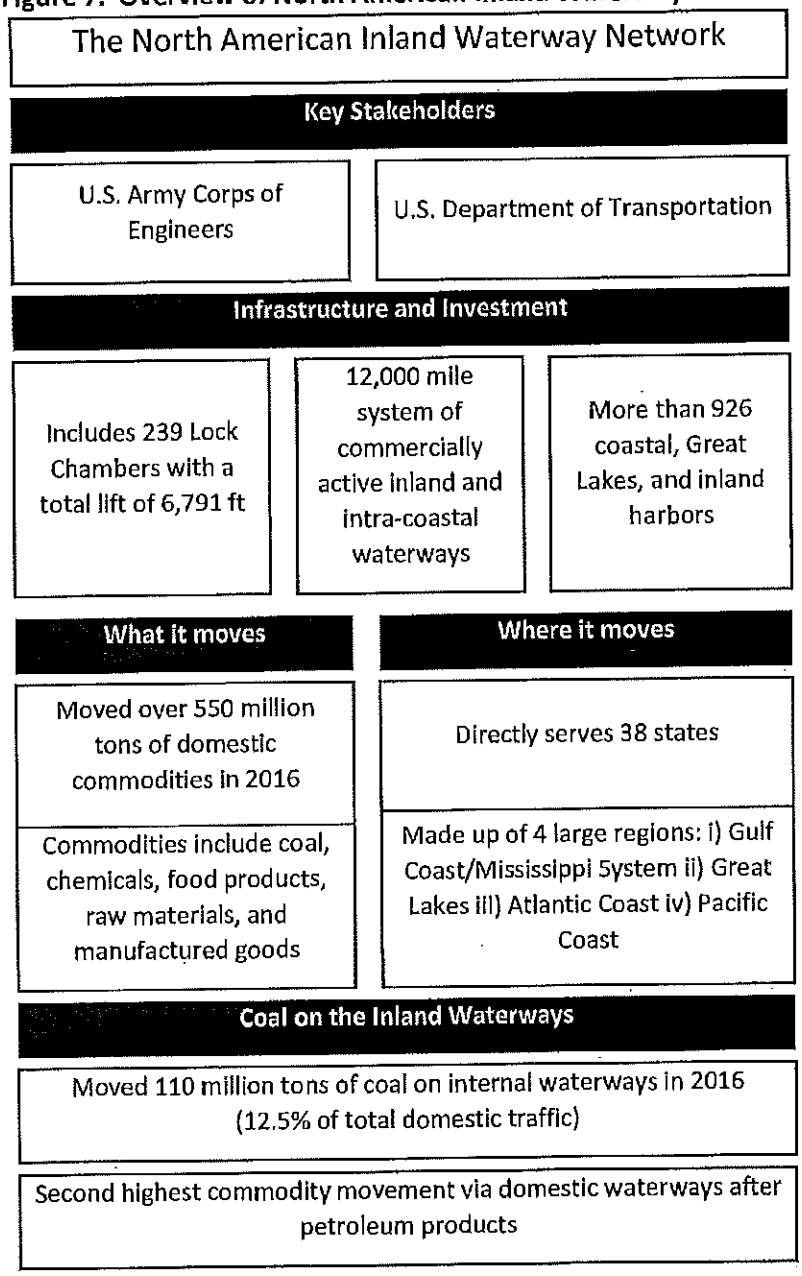
The U.S. has a large system of interconnected waterways that the U.S. Army Corps of Engineers is responsible for maintaining and operating. This system, which consists of 12,000 miles of commercially navigable channels through 38 states, transports a multitude of commodities to inland or port offloading locations. The waterways system is serviced by more than 31,000 barges that move more than 880 million tons of domestic cargo on the nation's rivers, coasts, Great Lakes and harbors. In 2016, more than 550 million tons of waterborne cargo transited the inland waterways, valued at $300 billion. Twenty percent (20%) of the nation's coal is moved on the water.[xxvi]

Several factors affect the capacity and effectiveness of the inland waterway network. These include seasonal river level cycles that can vary by up to 30 feet and shifting currents and navigational channels. Additional challenges are posed by the vast number and location of navigation lock chambers – 239 chambers at 193 sites – and the age of the locks which average about 60 years. Nearly 140 of the chambers in operation are over 50 years old and 58% of the locks are past their design life expectancy.



AMERICAN OVERSIGHT

**Figure 7. Overview of North American Inland Waterways Network**



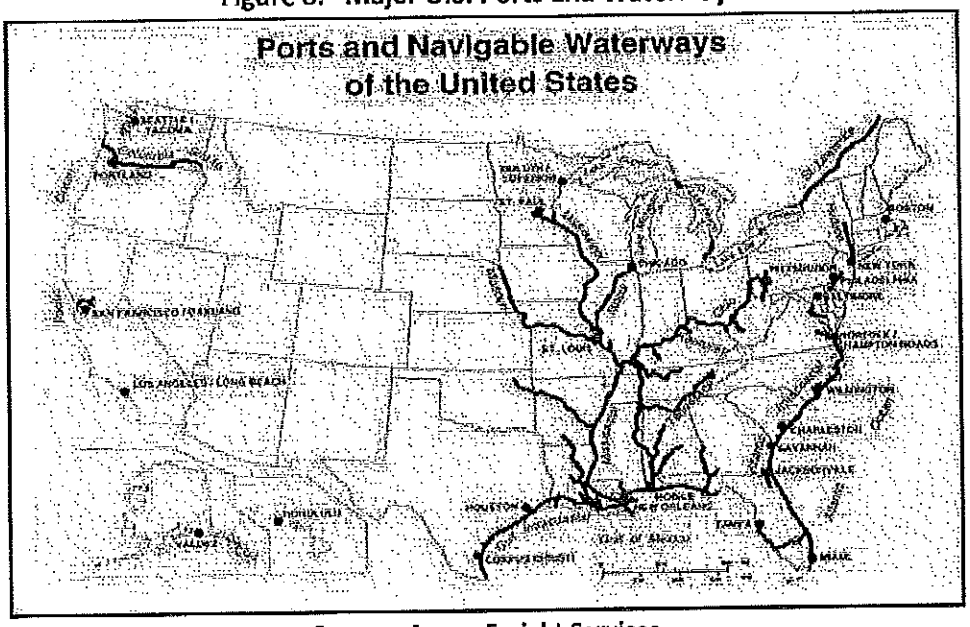

**Sources: American Society of Civil Engineers and U.S. Army Corps of Engineers**[xxvii]



AMERICAN OVERSIGHT

EXT-18-2615-G-000242

Figure 8: Major U.S. Ports and Waterways




Source: Armor Freight Services

**Ports**

Eastern producers typically export coals through the terminals on the U.S. East and Gulf Coasts. U.S. West Coast ports provide better access for western producers by virtue of the location of western coal basins and the proximity of the West Coast ports to the Pacific markets. The shortage of terminals on the U.S. West Coast has limited the tonnage of U.S. western coal that can be exported. While there are alternative outlets for western coals, namely the terminals in British Columbia (e.g., Westshore and Ridley), in Mexico (e.g., Guaymas), on the Great Lakes (e.g., Duluth or Chicago with transloading into ocean vessels in Quebec), and the U.S. Gulf Coast (e.g., direct rail to Houston and/or rail to barge to New Orleans), the alternative routes are longer and hence more expensive.[4]

**Eastern Ports.** Most of the coal that is exported from producing regions of the eastern U.S. (including Northern Appalachia, Central Appalachia, Southern Appalachia and the Illinois Basin) is transloaded onto oceangoing vessels at terminals located on the U.S. East and Gulf Coasts. The largest of these coal export terminals are located in four primary ports: Baltimore, MD; Hampton Roads, VA; Mobile, AL; and New Orleans, LA. (Smaller volumes of eastern U.S. coal are also exported through terminals located on the Great Lakes – primarily to Canada – and through several additional terminals on the U.S. East and Gulf coasts). Figure 9 shows the locations of these four major ports, along with their primary export destinations, reported nameplate capacity and 2017 actual coal export volumes. Combined, these ports exported a total of 78 million tons of coal in 2017, representing approximately 80% of the total U.S. coal exported that year.

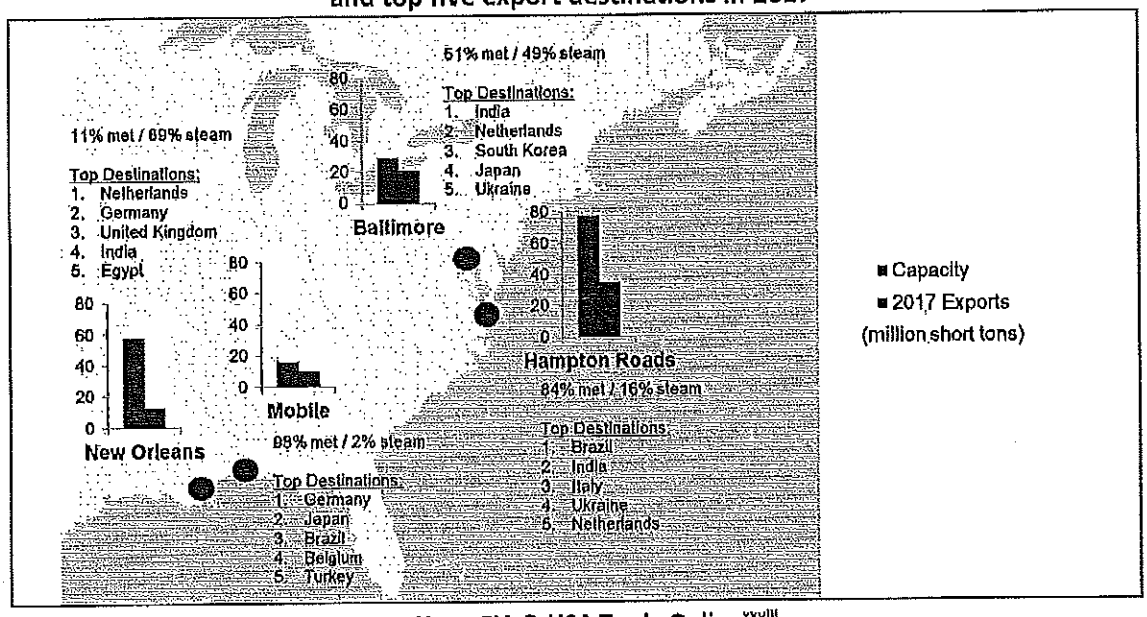
[4] See Appendix C for summary of key statistics for major coal export ports and terminals handling U.S. export coals.



AMERICAN OVERSIGHT

EXT-18-2615-G-000243

**Figure 9. Major Export Ports for Eastern U.S. Coal**
**Includes breakdown of metallurgical vs. steam coal shipments**
**and top five export destinations in 2017**




Source: Host, EIA & USA Trade Online[xxviii]

This throughput volume equated to approximately 43% capacity utilization, based on reported capacities, with Baltimore having the greatest capacity utilization (72%) and New Orleans the lowest (22%). In fact, the data indicate that there is sufficient terminal capacity available at these four ports to export ~181 million tons of coal, or nearly 60% of the total coal produced east of the Mississippi River in 2017. However, experience during Q1 2018 suggests that the actual working capacity of these terminals is hampered by various logistical and draft depth constraints, as detailed below. These constraints can result in significant underutilization of capacity. For example, the three major coal export terminals in the Port of Hampton Roads have a reported capacity of ~6.5 million tons per month, or ~19.5 tons per quarter, but these terminals exported only a combined volume of 4.7 million tons in April 2018 and 9.6 million tons in Q1 2018 with vessels waiting in queue. Constraints on the transportation systems serving these facilities, such as the availability of equipment and crews, have the potential to constrain terminal capacity.

Several factors impact the accessibility, economics and effective capacity of each terminal, including:

- Inbound transportation options, that determine which mines can ship directly to the terminal without having to switch transport modes/carriers, thus reducing the potential for congestion and delayed shipments,
- Unloading and loading rates, which affect the maximum rate at which coal can be received and loaded onto ships,



AMERICAN OVERSIGHT

- Draft, which determines the maximum vessel size (weight) that the terminal can accommodate (with implications for economics and throughput capacity),
- Ground storage capacity and reclaim system design, which affects the extent to which the terminal can accommodate imbalances between inbound and outbound shipment volumes and the effectiveness with which it can blend multiple coals to meet the quality specifications required by certain export customers, and
- Pier design and number of berths, which again affect the maximum vessel size and throughput capacity that can be accommodated.

In addition to the logistical constraints that contributed to below-capacity terminal operation in early 2018, U.S. East and Gulf Coast coal export terminals are generally all constrained by draft, which prevent them from fully loading the largest cape-size vessels available for dry bulk transport. This affects the competitiveness of U.S. coals as higher freight adds to the delivered cost per ton of U.S. coals. A project to dredge the main channel of the Port of Hampton Roads from 50 ft to 55 ft of water depth has been budgeted by the Virginia General Assembly and is pending final approval; if completed, this would allow higher-capacity loading of cape-size vessels and improve the economic competitiveness of certain coal exports from Hampton Roads.

Western Ports. Western U.S. coal exports are severely constrained by a lack of terminal and terminal capacity on the U.S. West Coast. Most of western coal exports from the Powder River Basin are being shipped through Canadian ports (e.g., Westshore) as are coal exports from the Signal Peak mine in Montana. Coal exports from the Uinta Basin in Colorado and Utah are constrained by limited ports in California. Some Uinta Basin coals are currently being exported through Guaymas.

Westshore Terminals Inc. located in the Port of Vancouver, British Columbia (Canada) has a total throughput capacity of 33 million tonnes in 2018. Approximately 14 million tonnes are estimated to be under contract with U.S. thermal coal exports and the remaining 19 million tonnes is for Canadian metallurgical coal exports, although this could change. The terminal, with on-site storage for approximately 2 million tonnes, can be accessed by BNSF, Canadian Pacific and Canadian National railways. Primary destinations for U.S. thermal coal out of Westshore include Japan, South Korea, Chile and Taiwan. Capacity is expected to increase by approximately 3 million tonnes in 2019. The Ridley and Neptune terminals in British Columbia also handle coal but have a transportation disadvantage vis-à-vis U.S. coals due to their greater distance from western coal basins.

The Metropolitan Bulk Terminal located in Stockton, CA has the capacity to load one Panamax vessel per week at 50,000 tonnes, equating to an annual capacity of 2.6 million tonnes per year. The terminal has storage capacity of approximately 100,000 tonnes of coal.



AMERICAN OVERSIGHT

The Port of Richmond, CA has the capacity to load one Panamax vessel per week at 50,000 tonnes, equating to an annual capacity of 2.6 million tonnes per year and storage capacity of approximately 80,000 tonnes. The primary coal exported through Richmond is bituminous coal mined in the Uinta Basin in Utah. The port can be accessed by BNSF and UP railroads. Maximum vessel size at berth is 55,000 tonnes.

The Oakland Bulk and Oversized Terminal (OBOT) in Oakland, CA is a redevelopment proposal for the former Oakland Army Base on San Francisco Bay. The project is a public/private partnership designed to revitalize the old site into a new bulk transloading facility. The primary advantage is the port has a 50-foot (15.25 meters) depth at low tide which allows it to take larger cape-sized vessels. This site is also served by both BNSF and UP railroads, but 104 railcar unit-trains will need to be processed in 26-car segments. The facility has capacity to top off two Panamax vessels per week (from Stockton/Richmond) to 85,000 tonnes equaling an annual capacity of 3.3 million tonnes per year.

The Port of Long Beach, CA is accessed by both the BNSF and UP, has storage capacity of approximately 175,000 tonnes and can accommodate a maximum vessel size of 130,000 deadweight tonnes (DWT).

The Port of Guaymas in the Mexican state of Sonora is being used to export U.S. coal. This is a multi-commodity port that is not explicitly designed for coal and it uses portable (mobile) equipment to unload trains and load ocean-going vessels. Coal exports in 2018 are estimated to be between 2.0 and 2.5 million tonnes. Coal is transported by the UP Railroad from Utah to Nogales, Mexico at the Arizona border. From there, Ferromex rail delivers the coal to Guaymas.

As detailed in Chapter 3 and Appendix D, numerous coal export terminals have been proposed for development in the Pacific Northwest. To date, none have successfully advanced and only one is still under consideration – the Millennium Bulk Terminals-Longview located on private property in Longview, Washington with a proposed capacity of 44 million tonnes.

**Vessels & Shipping Considerations**

Dry bulk cargo vessels have varying load carrying capacities based on their size; larger load carrying vessels are more cost-effective but require greater drafts and larger/longer piers. Cape-size vessels have a load carrying capacity of up to 199,000 DWT; Panamax vessels up to 80,000 DWT; Handymax vessels up to 50,000 DWT. (See Appendix C for vessel categories.)

Sail times for eastern U.S. coal to reach northwest Europe (Amsterdam, Rotterdam and Antwerp – collectively ARA) are approximately 13 days from U.S. East Coast terminals, and 17 days from U.S. Gulf Coast terminals. Sail times to India (via the Cape of Good Hope) are approximately 42 days from the U.S. East Coast and 44 days from the U.S. Gulf Coast. Sail times to Japan are approximately 34 and 32 days from the East and Gulf coasts, respectively, if the coal is routed via the Panama Canal, and approximately 54 and 56 days, respectively, if the coal is routed via the Cape of Good Hope.

Sail times from the U.S. West Coast to Japan and India are approximately 20 and 27 days, respectively.

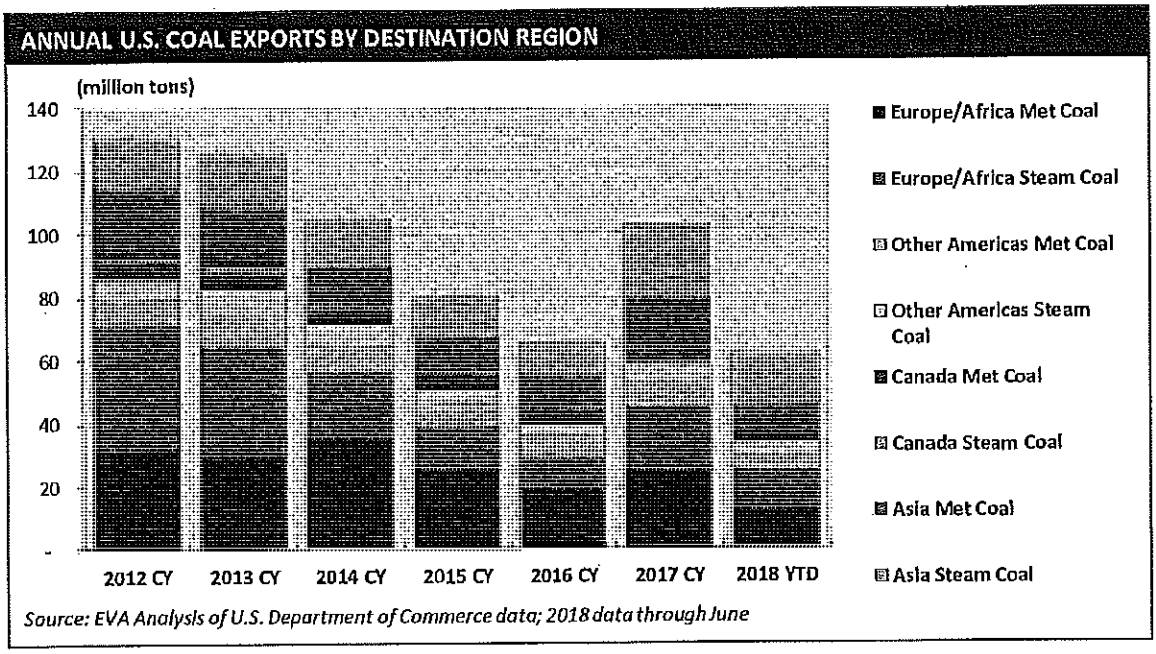


AMERICAN OVERSIGHT

## Prime Markets for U.S. Coals

Europe and Asia account for the vast majority of all U.S. coal exports. The U.S. has historically been a key coal supplier to Europe due to the proximity of U.S. East Coast and Gulf Coast terminals to Europe, longstanding business relationships between the U.S. and Europe, and desirable coal qualities that are readily consumed in Europe. Asia's growing demand for coal represents a significant growth opportunity for U.S. coal exports.

**Table 4: U.S. Coal Exports by Destination (million tons)**




**Source: EVA Monthly Coal Trade Report, June 2018**



AMERICAN OVERSIGHT

## Chapter 2. Competitive Assessment

### Key Findings – Chapter 2

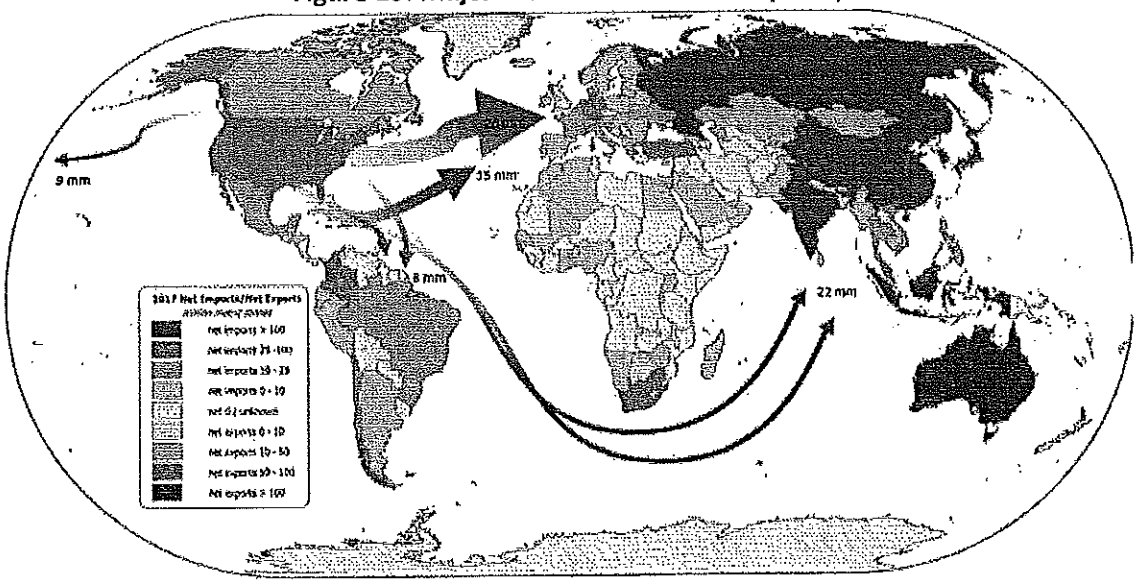
- **Global coal trade is a robust and growing market; worldwide coal trade has more than doubled since 2000.**
- **While Europe continues to be a principal market for U.S. eastern metallurgical coals, burgeoning demand in Asia represents a significant market opportunity for both eastern and western U.S. thermal coals.**
- **Global seaborne coal trade markets are volatile, influenced by such varied factors as economic growth/decline cycles, weather disruptions, currency exchange rates, nations' energy policies, trade regulations/agreements and geopolitics.**

### Global Coal Market Supply and Demand

Coal trade is an increasingly important segment of the global coal market, accounting for nearly 20% of global coal consumption in 2017.[xxix] Global trade in 2017 grew by 3% from 2016 levels and is now more than twice the trade volume of 2000.[xxx] The increase in global coal trade has benefitted all participants, including producers and traders based in the U.S.

Global coal trade remains robust with total exports in 2017 approaching 1.4 billion tonnes.[xxxi] As shown in the figure below, the largest net importers of coal are concentrated primarily in Asia, while the largest exporters are distributed relatively evenly across the globe in Indonesia, Australia, Russia, the U.S., Canada, South Africa and Colombia.

**Figure 10: Major U.S. Coal Trade Flows (2017)**




**Source: United Nations, U.S. Census Bureau**



AMERICAN OVERSIGHT

Asian coal imports have grown dramatically and now comprise nearly three-quarters of total global imports.[xxxii] Coal demand is expected to continue its shift toward Asia according to numerous international agencies, including the International Energy Agency (IEA), BP in its latest Energy Outlook and the U.S. Energy Information Administration (EIA). China was traditionally a net coal exporter (i.e., exports exceeded imports) but since 2007 the country has relied on seaborne markets both to fill voids left by domestic production shortfalls and to meet specific quality requirements. China's appetite for coal has grown as its economy has flourished. China is now one of the leading global economies and is shifting its emphasis from an industrial to a consumer-based economy. China imports coal primarily from Indonesia, Australia and Russia; the U.S. has exported relatively little volume to China.[5]

India has likewise moved to increase access to electricity across the country but societal and governmental mechanisms make this transition complex and slow. Seaborne coal is assuming an increasing role in the electric power, steel, and cement and brickmaking sectors, in part because of the poor domestic coal quality and in part because of the location of demand.

In addition to China and India, other Asian economies are moving toward coal to aid economic growth, including Indonesia, Vietnam and Malaysia among others. Coal is viewed as readily available and low-cost, thus ideal for reliable power generation. While South Africa has long had a significant coal industry, other parts of Africa are also embracing coal to provide stable low-cost power. Mozambique, in particular, has expanded its coal activities to include increased production, port facilities and exports.

While demand in Asia and Africa continues to develop, coal consumption in Europe and the Americas has peaked and is expected to decline because of the growing supply of low-cost natural gas and renewables. Regulations are limiting the ability of energy consumers to use coal in these regions, driven in large part by efforts to meet targets set by the United Nations Framework Convention on Climate Change (UNFCCC).[xxxiii] However, sovereign energy security concerns regarding an overreliance on natural gas have arisen in both the U.S. and Europe. If this trend continues, the remaining coal fleet in both regions could be viewed from a different lens. In Germany and Poland, for example, coal production and the power generated from this coal have become crucial to their economic health.

Given the increasing importance of coal in Asia, it is not surprising that coal production is also centered in Asia. China with its large coal reserves[6] accounted for 46% of global production in 2017.[xxxiv] Since China's coal production is largely absorbed by its domestic market, other exporters have stepped up to meet growing Asian coal demand. Producers in Australia and Indonesia are geographically advantaged to fill this need, but supply constraints from these countries, customer buying preferences and specific quality requirements

[5] See Appendix E for data on international coal markets.

[6] Coal reserves can be calculated in various ways as a fraction of the total coal resource. In this report, coal reserves sometimes reflect "total marketable reserves," that portion of the indicated or measured reserve that is expected to be mined in the future over the life of each identified operating mine and project. Marketable reserve values can change significantly over time as the economics of the coal market change.



AMERICAN OVERSIGHT

sometimes require or even favor coal produced in more distant regions, principally in the Americas and South Africa. This is a trend that is expected to continue, and one for which competitive advantages can be nurtured and enhanced.

**Metallurgical Coal Trade**

Global metallurgical coal production has remained relatively stable in recent years with approximate 2017 production of over one billion tonnes.[xxxv] China is the world's largest metallurgical coal producer regularly accounting for about one-half of total global production.[xxxvi] Chinese production of metallurgical coal peaked in 2013 at over 650 million tonnes[xxxvii] but has been subsiding since then and is now less than 550 million tonnes as China seeks to reduce industrial overcapacity. Overall, metallurgical coal production is heavily concentrated. Metallurgical coal production from top producers, China, Australia, Russia and the U.S. consistently accounts for about 80-85% of total global metallurgical coal production.[xxxviii] The U.S. is consistently one of the top five global metallurgical coal producers and exporters.

Metallurgical coal is consumed in many countries around the world. Unsurprisingly, China is by far the largest global consumer, regularly accounting for two-thirds of global consumption in recent years.[xxxix] Other major consumers include India, Russia, Japan, South Korea and the U.S., the latter of which consumes just 2% of 2015 global metallurgical coal.

Despite their large domestic coal reserve bases, India and China remain large importers of metallurgical coal seeking quality not available from domestic sources. Japan, South Korea and Taiwan are large steel producers, but have no indigenous metallurgical coal for coke-making and therefore import all their needs. Other, non-Asian steel producers in the Americas and Europe are also significant metallurgical coal importers.

These importers seek defined metallurgical coal qualities at best available prices. The largest importers are Asian, providing Asian suppliers that can meet quality requirements with a competitive transportation advantage. Australia and Indonesia profit from this proximity advantage. From its east coast, Russian suppliers also serve Asian markets, just as they also serve markets in the European region. U.S. metallurgical coals also serve European and South American markets, where transportation economics are favorable, and their quality characteristics (i.e., high fluidity) make them attractive for use in certain metallurgical blends in Asia, despite its transportation disadvantage.

Australian supply dominates Asian metallurgical coal import markets with additional supply provided from Canada, Russia, Indonesia and the U.S. Australia and the U.S. share dominance in European import markets, with additional supply sourced from Russia. In the Americas, import supply is typically provided by Australia and the U.S., with Canada contributing lesser amounts. Finally, given the size of its domestic market and reserve base, domestic metallurgical coal in China must be considered a competitor to all exporters even though it exports very little metallurgical coal. The need for high-quality, low-ash and high-CSR[7]

[7] CSR – coke strength after reaction – is a metallurgical coal quality.



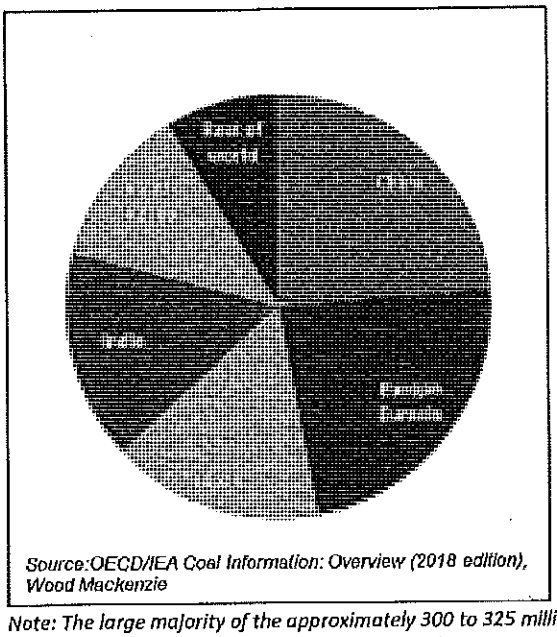
AMERICAN OVERSIGHT

imported coal in China, as well as the policy decisions the country takes, can significantly influence the import market and alter competitive market dynamics.

Thus, major direct competitors to U.S. metallurgical coal exporters are Australia, Russia and Canada. These countries compete with the U.S. for the metallurgical coal trade market, calculated to be between approximately 300 and 325 million tonnes in 2017[xi]. Over time, Mozambique may develop as a major source. The supply into the export market is fungible and can shift between sources. For example, to the extent Chinese import demand increases its imports of Australian metallurgical coal, the markets for other sources into other countries increase.

**Figure 11: Metallurgical Coal Imports & Exports**

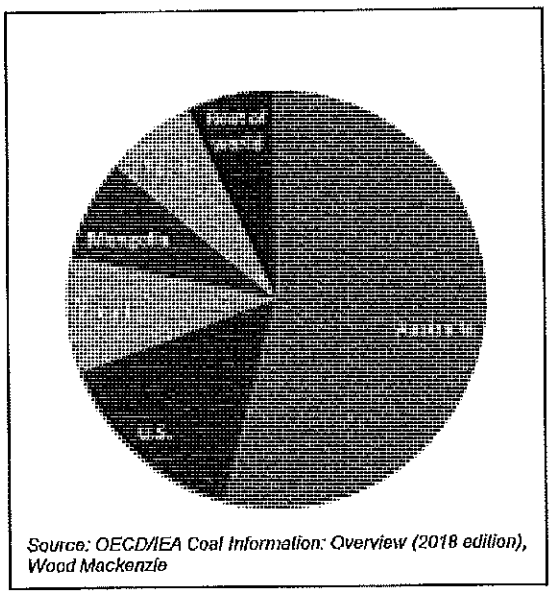
*Share of 2017 global metallurgical coal imports by country/region, %*



*Source:OECD/IEA Coal Information: Overview (2018 edition), Wood Mackenzie*

*Note: The large majority of the approximately 300 to 325 million tonnes of imports are received via seaborne methods.*

*Share of 2017 global metallurgical coal exports by country/region, %*



*Source: OECD/IEA Coal Information: Overview (2018 edition), Wood Mackenzie*

*Note: The large majority of the approximately 300 to 325 million tonnes of exports are delivered via seaborne methods. Mongolian and some Russian exports are landborne.*

Detailed descriptions of the metallurgical coal industry in countries that compete with U.S. exporters are provided in Appendix F, which includes a brief description of marketable reserves,[8] general production and export position, coal quality, general infrastructure, and brief notes on important fiscal and regulatory items for each country.

[8] For purposes of this report, "marketable reserves" refers to the sum of production expected from mines into the long-term future. Any reference to actual costs or specific ranges of costs has been purposefully left out of this report.



AMERICAN OVERSIGHT

**Thermal Coal Trade**

Globally, thermal coal production reached a peak in 2013 and has plateaued ever since. Declining production and consumption in much of the western world is countered by growth in Southeast Asia and the Indian sub-continent. Today, over 50 countries produce thermal coal, many in small quantities, but the top seven thermal coal producers routinely account for about 85% of global production.

China is the world's largest thermal coal producer, and even though its production is declining somewhat, it still accounts for over 40% of 2017 global thermal coal production.[xlii] The list of largest thermal coal producers always includes India, the U.S., Indonesia, Australia, Russia, South Africa and Germany. In 2017, the U.S. accounted for about 11%[xliii] of global thermal coal production but its global share is declining rapidly as it cedes domestic energy consumption market share to natural gas and renewables.

China is by far the largest global consumer of thermal coal, having accounted for well over one-half of global consumption in 2017.[xliii] The top seven consuming countries in 2017 accounted for about 80% of total consumption. After China, other top coal thermal coal consumers include India, the U.S., Germany, South Africa, Russia, Japan and Poland. The U.S. share of global thermal coal consumption was over 9% in 2017.[xliv]

Economics and quality considerations encourage a lively import/export market for thermal coal, which is three to four times the size of the metallurgical coal import/export market. As is the case with metallurgical coal, India and China remain large importers of thermal coal for quality and cost reasons. Having no domestic coal resource and being dependent on imports, Japan, South Korea and Taiwan are also large thermal coal importers. In 2017, Germany and Turkey were the largest importers of thermal coal in the European region. Combined, these seven countries regularly account for about three-quarters of all coal imported in the world. The U.S. is a very minor importer of coal.

Thermal coal is available from many global sources with widely varying quality characteristics. Indonesia (364 million tonnes in 2017)[xlv] and Australia (200 million tonnes in 2017)[xlvi] are the largest global thermal coal exporters. Given their proximity to the growing Asian markets, Australian and Indonesian producers profit from their ability to deliver coal at low cost. Russia is also a large thermal coal exporter and can deliver coal to Northeast Asia with very low ocean freight costs, although its landborne transportation costs to port are very high. Russian thermal coal is also delivered to multiple locations in the European region as well, by both land and sea.

Colombia and South Africa are also large exporters of thermal coal. While both serve global markets, Colombian coal is sold largely into Europe while South African coal is sold largely into Asia. The U.S. always occupies a position in the top ten of thermal coal exporting countries, although its shipment volumes can be quite variable given that it is often the a marginal supplier to the global market. U.S. thermal coal exports, which were approximately 37 million tonnes in 2017, principally serve European markets and, when economics warrant, markets in Asia. Lack of U.S. West Coast port capacity has hampered the ability of U.S. coals to



AMERICAN OVERSIGHT

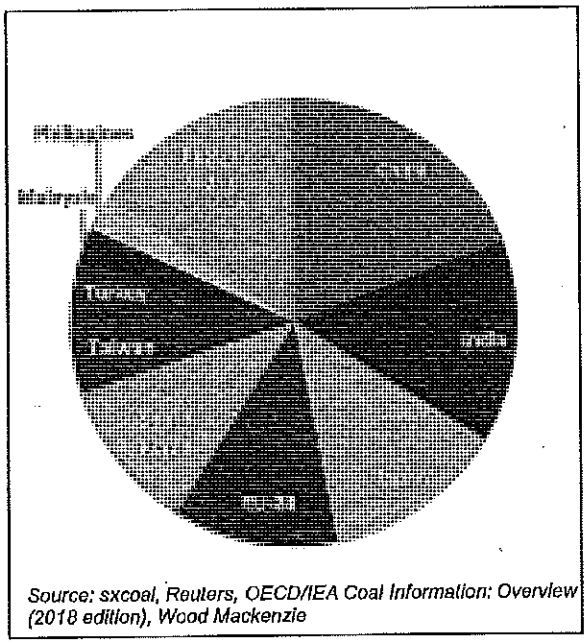
compete economically in Asia. Approximately 10 million tonnes of western U.S. thermal coal was exported via Canadian ports to Asia in 2017.

Australian, Indonesian and South African suppliers dominate Asian thermal import markets with additional supply from Russia and, when competitive economics are favorable, from the Americas. In the European region, the import market is dominated by Colombia, Russia, the U.S. and South Africa. In the Americas, import supply is typically provided by producers in the Americas, with small amounts from elsewhere.

The major competitors for U.S. thermal coal exporters are market-dependent. In Europe, the primary U.S. competitors are Russia and Colombia. Australia is a major competitor in the Asian market. South Africa, because of its location, is a swing supplier between the European and Asian markets. South Africa had been a major supplier to Europe until significant growth in the Asian market made exporting to that market more attractive. The U.S. would be a major competitor to Indonesia if additional exports of Powder River Basin coal to Asia were realized given that many customers desire supply diversity, heightening the U.S.'s position as a stable export supplier.

**Figure 12: Thermal Coal Imports & Exports**

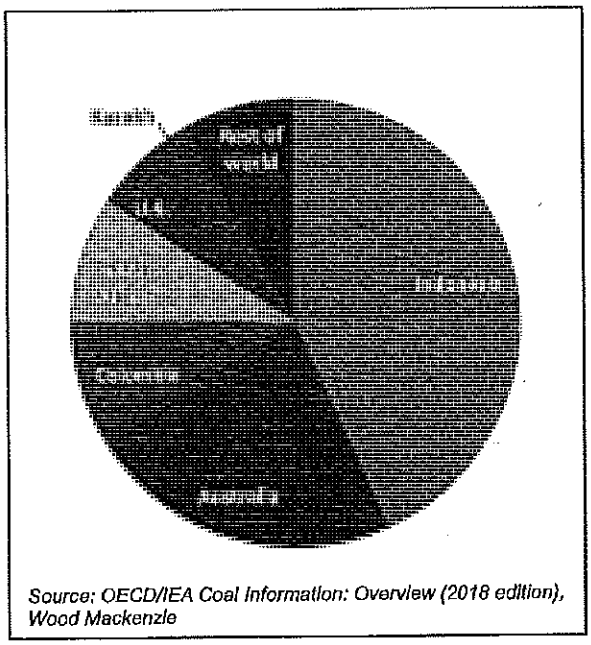
*Share of 2017 global thermal coal imports by country/region, %*



*Source: sxcoal, Reuters, OECD/IEA Coal Information: Overview (2018 edition), Wood Mackenzie*

*Note: The large majority of imports are delivered via seaborne methods.*

*Share of 2017 global thermal coal exports by country/region, %*



*Source: OECD/IEA Coal Information: Overview (2018 edition), Wood Mackenzie*

*Note: Nearly all exports use seaborne methods. Kazakhstan exports are by land.*



AMERICAN OVERSIGHT

Descriptions of the thermal coal industry in countries that compete with U.S. exporters are provided in Appendix G, which includes a brief description of marketable reserves,[9] general production and export position, coal quality, general infrastructure, and brief notes on important fiscal and regulatory items for each country.

## Competitiveness of U.S. Coal with Global Supply

Coal purchasing is universally made on an evaluated delivered cost basis. The relative economics of the alternative coal sources can and do change as a result of numerous factors such as relative strength of the U.S. dollar, oil prices, unexpected events, geopolitical events and freight markets. Using key factors, the advantages and challenges of U.S. metallurgical and thermal coals relative to its major global competitors is summarized in the tables below. (See Appendix H for a competitive assessment of U.S. coal exports vis-à-vis other coal supplier nations.)

[9] For purposes of this report, "marketable reserves" refers to the sum of production expected from mines into the long-term future. Note also that If general infrastructure and/or fiscal and regulatory items for Australia, Russia and the U.S. were already described in the metallurgical supplier section above. Any reference to actual costs or specific ranges of costs has been purposefully left out of this report.



AMERICAN OVERSIGHT

Table 5: Advantages and Challenges of U.S. Metallurgical Coal versus Competitive Supply by Country

| METALLURGICAL COAL | vs. Australia | vs. Russia | vs. Canada | vs. Mozambique |
|---|---|---|---|---|
| Mine cost | U.S. mine costs are higher | U.S. mine costs are higher | Mine costs are broadly similar | U.S. mine costs are lower |
| Quality | U.S. has limited production of premium hard coking coal<br>U.S. has abundant high fluidity, high vol, low ash, low sulfur coal<br>U.S. has very good coal preparation & blending facilities | Russia has very large reserves of premium hard coking coal<br>Australia and Canada are the only other countries with large reserves of premium hard coking coal<br>U.S. coking coal quality is superior | U.S. has limited premium hard coking coal production<br>U.S. has abundant high fluidity, high vol, low ash, low sulfur coal<br>U.S. has very good coal preparation & blending facilities | U.S. has lower ash coal |
| Infrastructure and logistics | U.S. rail costs are higher<br>Government relations with rail companies are better in the U.S. | U.S. rail costs are lower<br>Russia has winter rail disruptions<br>Port costs are higher in Russia | Rail costs are broadly similar | U.S. rail costs are lower |
| Ocean freight (OF) | U.S. OF is higher to Asia<br>U.S. OF is lower in the Atlantic | U.S. OF is higher to Asia<br>U.S. OF is lower in the Atlantic | U.S. OF is higher to Asia | U.S. OF is higher to Europe and Asia |
| | U.S. ports are ice free, while Russian ports are frozen for several months each year. Canada's Vancouver port is frequently closed by ice. Mozambique ports are ice free. | | | |
| Security and regularity of supply | U.S. experiences labor strikes | Russia has proven an interrupted coal delivery | Broadly similar - both high reputable suppliers | U.S. political structure and infrastructure dependable |
| | U.S. has experienced seldom interrupted shipments | Russia in transition to market economy | U.S. has greater fiscal and regulatory stability | U.S. has greater fiscal and regulatory stability |
| | U.S. has greater fiscal and regulatory stability | U.S. has greater fiscal and regulatory stability | | |
| Shipment uniformity | Broadly similar | U.S. has better quality control of shipments | Broadly similar - U.S. and Canada both careful shippers that carefully manage contracts | U.S. has better quality control of shipments |

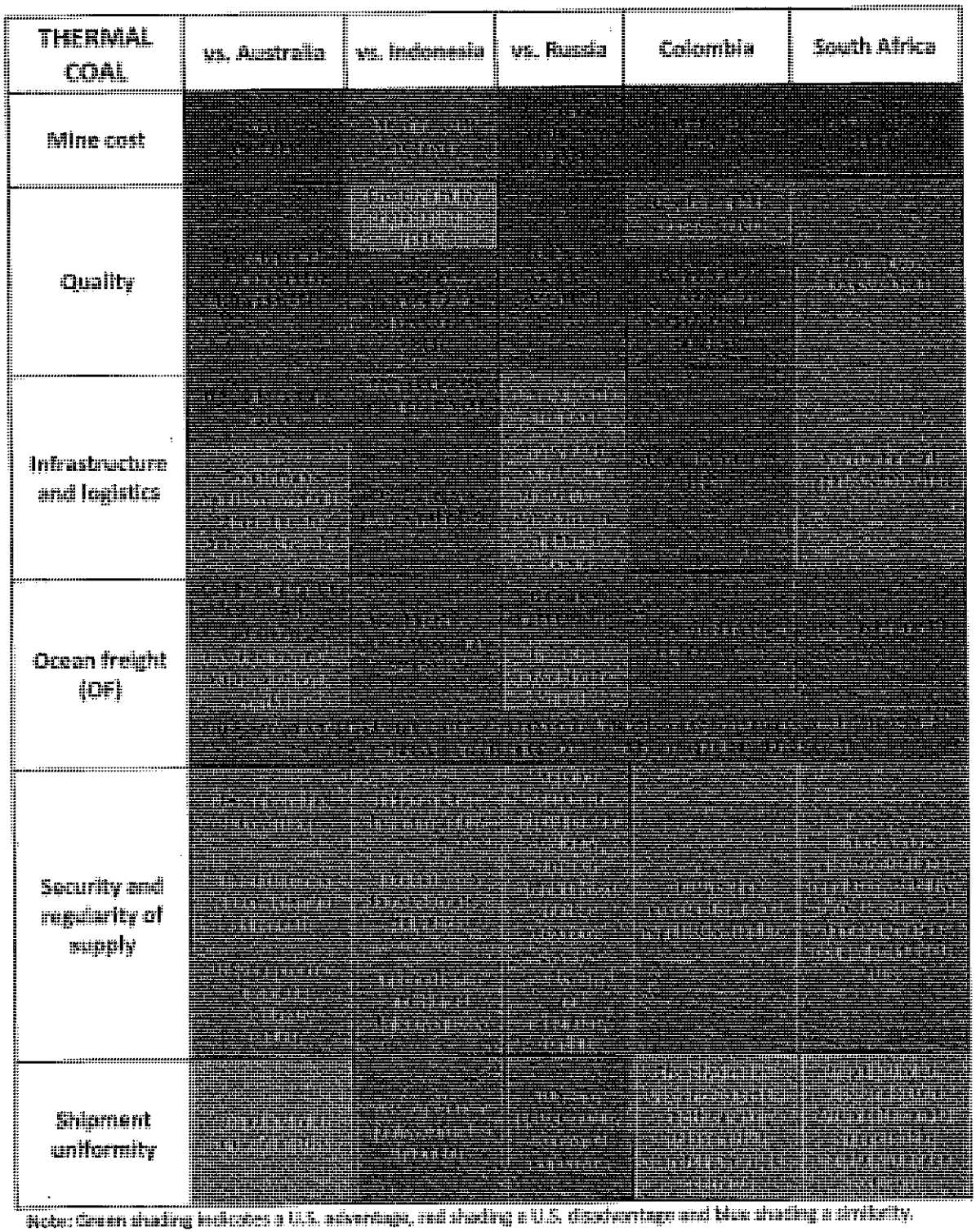
Note: Green shading indicates a U.S. advantage, red shading a U.S. disadvantage and blue shading a similarity.



AMERICAN OVERSIGHT

EXT-18-2615-G-000255

Table 6: Advantages and Challenges of U.S. Thermal Coal versus Competitive Supply by Country




Note: Green shading indicates a U.S. advantage, red shading a U.S. disadvantage and blue shading a similarity.



AMERICAN OVERSIGHT

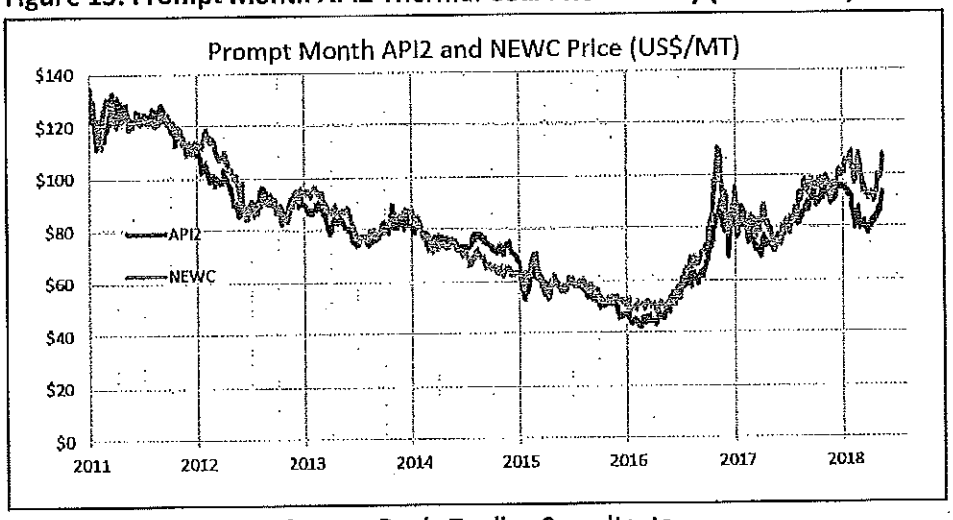
EXT-18-2615-G-000256

**Trends in Export Coal Pricing**

Seaborne coal markets have experienced numerous cycles over the past 10 years as is typical for most commodities. The primary reason for the volatility has been the emergence of Asia as an economic power, especially China and India. Market cycles have taken a toll on prices and made long-term coal production planning difficult. Additionally, with global climate initiatives, access to capital for needed investments in coal infrastructure has also become more restricted.

Just before the Global Financial Crisis in 2008, thermal seaborne coal prices reached $180 dollars/tonne ($163/ton) FOB vessel but in 2009, prices collapsed to close to $60/tonne ($54/ton). Prices recovered through 2011 but collapsed again to even lower levels through the first half of 2016. At that time, the combined effects of China reducing production through some overt policy measures and a multi-year capital diet for coal producers lead to an increase in seaborne coal demand. Adding to the events were weather-related disruptions in Australia and regulatory changes in India limiting petcoke[10] supply. Prices have recently rebounded to approximately $100/tonne.

**Figure 13: Prompt Month API2 Thermal Coal Price History (2010-2018)**




**Source: Doyle Trading Consultants**

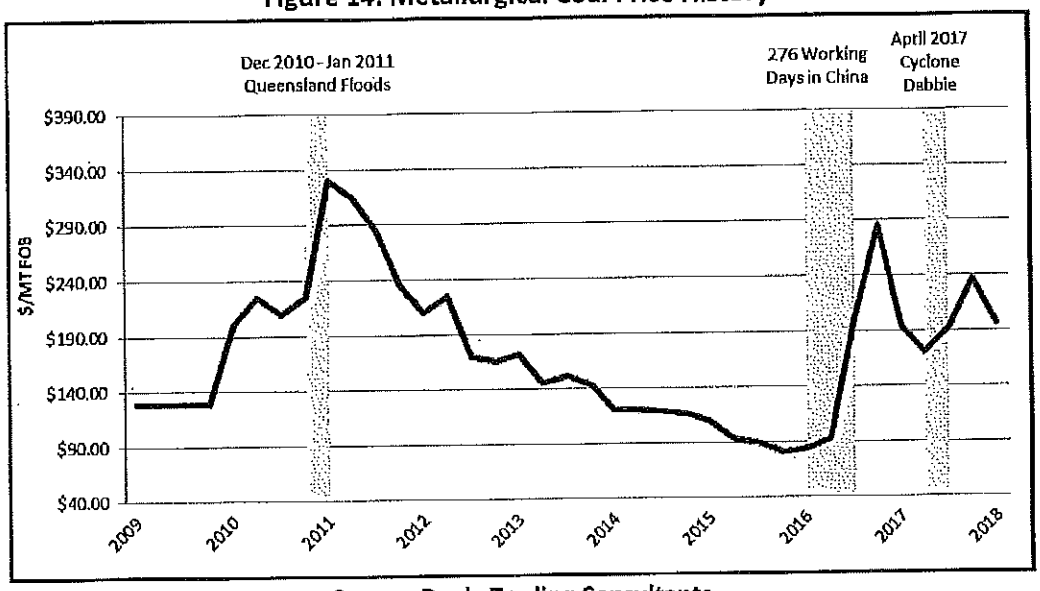
Metallurgical coal has experienced similar market cycles for many of the same reasons, but the magnitude of the price change has been much more pronounced. Again, policy changes in China and India as well as less supply growth flexibility on the part of producers have resulted in metallurgical coal prices that are close to $200/ tonne ($179/ ton) on an FOB vessel Queensland, Australia basis.

[10] Petroleum coke, or coke or petcoke, is a material that derives from oil refining and is one type of the group of fuels referred to as cokes.



AMERICAN OVERSIGHT

**Figure 14: Metallurgical Coal Price History**




**Source: Doyle Trading Consultants**

In addition to market factors, global seaborne trade is subject to unexpected disruptions caused by weather and changes in policy or economics. Australia provides a ready example of the potential impacts of weather. Over the past 10 years, three cyclone events have disrupted supply, especially for metallurgical coal. The most recent occurred at the end of March 2017 when Cyclone Debbie struck the Queensland coast. This event caused damage to numerous rail lines serving the ports and cut into Australia's exports by approximately 15 million tons compared to calendar year 2016. This event has raised once again the need for supply diversity, particularly for steel producers in Japan and South Korea.

Other examples include the harsh winter in the U.S. at the beginning of 2018 which caused production, transportation and ship-loading delays. China has had weather-related disruptions as cold weather has challenged natural gas availability for residential and commercial heat which increased demand for coal-based power generation. Temperature extremes, which can rapidly create a shortage or surplus in demand, also supports the need for a robust seaborne market.



AMERICAN OVERSIGHT

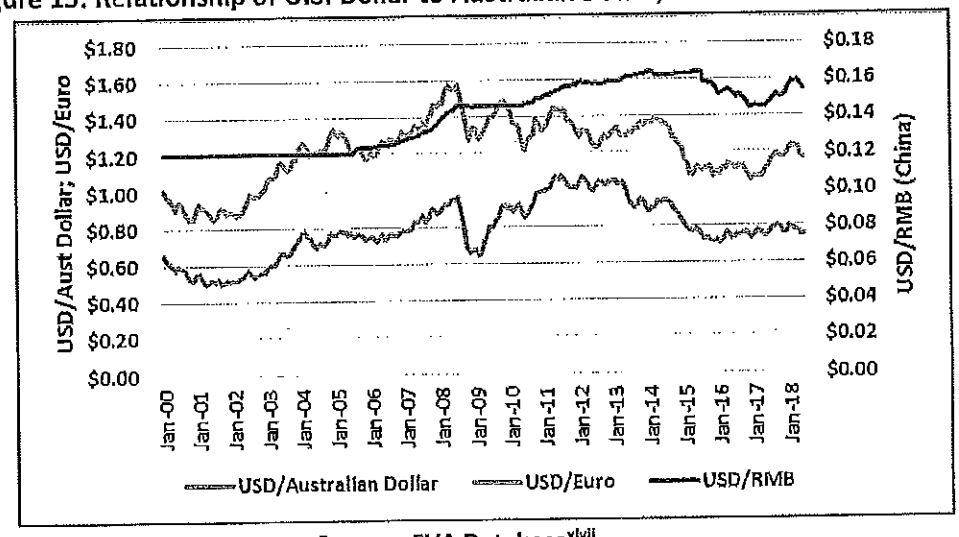
EXT-18-2615-G-000258

**Exchange Rates & Price Indexes**

Currency exchange is a significant contributing factor for global coal trade. Given that global coal trade is U.S. dollar-denominated, valuation differences can have a meaningful impact on both coal producers and coal consumers. The currency relationship of greatest importance is that between the U.S. dollar and the Australian dollar because of Australia's dominance in both the export metallurgical and steam coal markets. As a result, when the U.S. dollar is weak relative to the Australian dollar, global coal prices are higher and U.S. coal is more competitive. Conversely, when the U.S. dollar is strong relative to the Australian dollar, global prices are lower and U.S. coal becomes less competitive. Additionally, when the U.S. dollar is strong and the Euro and/or Chinese yuan (RMB) are weak, importing U.S. coal is more expensive versus domestic coal and power supply.

Also important to note is that exported coal is sold primarily based on U.S.-denominated indexes and market participants, including producers and traders. Coal is sold both at the point of origin (commonly known as FOBT, or FOB Terminal) where the customer arranges and pays for transportation to the destination or on a delivered basis (commonly known as CIF, or Costs, Insurance and Freight) where the seller arranges and pays for the transportation of coal to the destination.

**Figure 15: Relationship of U.S. Dollar to Australian Dollar, Euro and Chinese RMB**




**Source: EVA Database**[xlvii]

## Effects of Policy on Global Coal Trade

Other factors affecting coal trade patterns include policy directives, trade regulations and trade agreements among nations. Policies include limitations or tariffs on certain types of coal, regional rules that require a portion of supply goes to meet domestic needs, rules that limit the transport of coal at certain hours of the day and rules that prevent development of new infrastructure that can be used to move coal. Trade agreements, incentives and even political posturing all influence coal trade.



AMERICAN OVERSIGHT

EXT-18-2615-G-000259

Policy can be explicit, such as in China where directives from the Central Government have been used to support its domestic coal industry. Directives can include specific limitations regarding the number of days a miner can work, time of day and methods for coal transportation, safety directives, environmental regulations and limits on which ports can and cannot be used for transport of coal.

Similarly, in India, policies covering the mostly state-owned Coal India and its labor unions and environmental performance have at times influenced coal imports. Recent regulations to limit the use of high-sulfur petcoke have resulted in increased demand for imported coal, particularly demand for higher calorific value coals that are closer to the heating properties of petcoke. As high calorific value U.S. coals have increasingly gained acceptance in markets traditionally served by petcoke (such as the cement kiln market in India as well as cement kiln markets in other growing economies such as Africa), petcoke prices have also become more relevant as a key driver of pricing and demand for U.S. thermal coal exports.

Policies that regulate the price of domestic electric power have also influenced trade in India which has been advancing new policies to promote domestic supply with the intent to eliminate imports completely by 2020. However, problems with domestic production and transportation, and surging power demand have pushed demand for imports higher in 2018. This has occurred concurrently with China's increased purchasing and thus increased prices for thermal coal during the first half of 2018.

National policies in Japan, South Korea and Taiwan have driven decisions to include coal as part of a diversified energy portfolio. These countries are energy vulnerable, importing 96% of their energy needs. They are seeking diverse, stable suppliers for energy security purposes and plan to meet ~25%-30% of their electricity generation with coal.

Japan is investing in high efficiency coal technologies. Two new integrated gasification combined cycle (IGCC) plants are underway which can be well served by PRB coals that have chemical properties suited to IGCC technology. The trend for increasing reliance on thermal coal plants is supported by the Japan's Strategic Energy Plan[xlviii], which recognizes coal as "an important baseload power supply because it involves the lowest geopolitical risk and has the lowest price per unit of heat energy among fossil fuels."

Trade policies can also be at issue. On April 26, 2017 British Columbia Premier Christy Clark sent a letter to the Prime Minister of Canada, Justin Trudeau, requesting that the Canadian federal government's port regulator take steps to halt thermal coal exports through ports in British Columbia. The letter appeared to be initially motivated by an increase in U.S. tariffs on softwood lumber exports from British Columbia.

Finally, geopolitical influences also play a role. Trade embargos have shifted available supply and disrupted markets. China's embargo of coal from North Korea in 2017 is believed to have shifted imports from North Korea to other supply sources. Tariffs, if imposed, could have a similar effect.



AMERICAN OVERSIGHT

## Chapter 3. Barriers to U.S. Coal Exports

### Key Findings – Chapter 3

- **The U.S. has abundant reserves of coal available to meet both domestic and international market demand. Some existing and prospective Federal mineral ownership and mining regulations may restrict development of U.S. coal reserves for export. Select government initiatives at the Federal and state levels could provide support for continued production in traditional U.S. coal supply regions and aid in expanding production in non-traditional U.S. regions for coals in high demand overseas.**
- **While U.S. East Coast terminal capacity is generally adequate, coal export economics would improve with channel deepening to accommodate larger bulk carrier vessels. U.S. Gulf Coast export terminals would benefit from improved dredging and maintenance of inland waterways' locks and dams. The limited capacity of export terminals on the U.S. West Coast has significantly hindered the ability to export western U.S. coals for which a market exists.**
- **U.S. and international proscriptions denying or limiting banking and financial community support for development of coal-fired facilities overseas restricts opportunities for U.S. coal exports.**
- **Increasing coal exports has the potential to improve the U.S. balance of trade and support U.S. coal producers facing uncertainty in domestic markets. Trade policies and agreements have the potential to either expand or restrict markets for U.S. coal exports.**

U.S. coal exports have been very volatile over the years, ranging from a peak in 2012 of 125 million tons to a low of 39 million tons in 2002.[xlix] This volatility is attributable to many factors, including fluctuations in market demand, competition from global suppliers and various importing nation constraints, such as coal-import limiting policies and infrastructure.[11] While many of these variables are outside the control of the U.S. government and industry, there are numerous other factors which can be addressed by policymakers and commercial interests to enhance U.S. coal exports.

### Supply Considerations

There are ample reserves of U.S. coal to allow for higher exports. Regional supply/demand considerations may limit what is immediately available to export versus what can be developed for long-term export markets. The barriers to the development of U.S. coal reserves for the export market are generally regional in nature. The most significant are related to federal mineral ownership, mining regulations, support for traditional coal supply regions and the development of non-traditional coal supplies.

[11] See Appendix I for a graphic representation of U.S. thermal and met coal exports by destination.



AMERICAN OVERSIGHT

**Federal Mineral Ownership**

The Federal government ownership of coal resources is concentrated in the western U.S.[11] In 1920, the Mineral Leasing Act (the 1920 MLA) was enacted to establish governance for coal and other minerals. Thereafter, development of Federal coal required a Federal coal lease. The Bureau of Land Management (BLM) is responsible for ensuring the Federal government receives fair market value when the leases are entered into and for administering the leases. BLM's authority is through the 1920 MLA as amended, the Mineral Leasing Act of 1947 (the 1947 MLA), as amended, and the Federal Land Policy Management Act of 1976 (FLPMA).

The Federal government receives three payment streams upon the leasing of Federal coal – bonus payments, rents and royalties. The first two are paid independent of production. Bonus payments are the amount paid to BLM to win a leasing contract.[12] Rents are paid annually on a per acre basis. Royalties are production taxes that are paid on a per ton sold basis. The current royalty rates are 12.5% for surface coal and 8% for underground coal.[13] As the royalty rates are standard, it is the bid on bonus payments that determines whether and to whom a property will be leased. BLM will only enter into leases when it deems the bonus payment level is appropriate.[14]

During the prior Administration, a pause on Federal leasing was imposed and alternative ways to apply royalty rates were under consideration, ranging from the rate applied to a market price (rather than the actual price) to a rate based upon the delivered price to simply a higher royalty rate (i.e., greater than 12.5% for surface mined coal and 8% for underground mined coal). While the pause was withdrawn with the change in Administration and the discussions on revising the royalty rates were abandoned, not surprisingly the possibility of such changes could affect the ability and willingness of parties to fund investments in mine development and expansions related to future exports.

Equally problematic are the challenges to the current practice of leasing Federal coal as related to the use of logical mining units (LMU)[15], the lack of transparency in how the BLM determines whether a bonus payment is acceptable and the timing of the bonus payments.

In addition, the Federal government may need to revise its expectations for bonus bids – the upfront payments companies make to acquire leases that allow for the mining of the coal. These upfront payments – generally made years in advance of the commencement of mining – represent a significant impediment to continued development of Federal coal reserves.

---

[12] The bonus payment is paid effectively over a four-year period with the first payment upon selection and the remaining four payments on the annual anniversaries.

[13] Parties can petition for lower rates for economic reasons. This does not occur often.

[14] Producers do not believe there is sufficient transparency in the determination of whether the bonus payment is adequate.

[15] A logical mining unit is an area of land in which coal resources can be developed in an efficient, economical and orderly manner as a unit with due regard to conservation of coal reserves and other resources.



AMERICAN OVERSIGHT

Each new lease (or "lease-by-application" – LBA) is offered through a public auction in which the high bidder acquires the right to mine the coal – with the caveat being that the bid must meet the government's fair market value (FMV) test for the lease. The BLM has the ability to take recent market developments into consideration when it conducts its FMV calculation. However, it is likely that future bonus bids will need to be far lower than historical levels given the vast changes to domestic coal markets. It would behoove the BLM to consider these significant changes – as well as the value of preserving ongoing Federal royalty payments, rents, tax receipts and jobs – when analyzing what constitutes reasonable FMV today.

Moreover, other changes to the LBA system – such as revising the payment terms from five equal, upfront payments to something more manageable for the coal industry – should be considered. With permitting times lengthening, many mining companies may not realize revenue from the lease prior to all five payments being due.

**Mining Regulations**

Mining regulations, like Federal leasing, can affect the competitiveness of U.S. coal exports. The industry believed that the Stream Protection Rule would impair the ability to surface mine in Appalachia and to use longwall mining technology throughout the U.S.; this rule was repealed early in the Trump Administration under the provisions of the Congressional Review Act. The specter of future such regulations imparts uncertainty for coal producers and the investment community, potentially impairing the ability to mine economically.

**Support for Traditional Coal Supply Regions**

While the Appalachian metallurgical coal fields have been heavily mined for decades, existing production could be expanded with selected government initiatives. For example, in Virginia, Governor Northam recently signed into law a tax credit for metallurgical coal production from thin-seamed underground mines and surface mines. For the underground mines, the level of the tax varies with seam thickness.

Given the very sizable economic benefits provided by the coal industry in mining communities and the challenges associated with justifying new investment in a marketplace that is changing rapidly, states may benefit from offering a range of support mechanisms for new mining investment. Absent a renewed tranche of investment in new mining capacity, reserve degradation and depletion are likely to lead to a gradual erosion in U.S. mining activity over time.

New investment, on the other hand, should enable the U.S. coal industry to continue to compete on the global stage. This is particularly important given the fact that U.S. coal producers are competing with international players that may be more proximate to the fastest growing demand centers in Asia, or may be operating in a less rigorous regulatory environment. In addition, huge recent investments in mine, rail and port capacity in some of these countries may be providing a significant operating cost advantage that U.S. producers must overcome.



AMERICAN OVERSIGHT

Incentives could include tax credits or other mechanisms that reduce severance or other forms of public payments related to new investments. In such a scenario, the state would still achieve incremental revenues by incenting investment that would not otherwise occur. Moreover, the state would benefit heavily from the new, high-paying jobs – both direct and indirect – that would be created, as well as the many other economic benefits that would result.

### Development of Non-Traditional Coal Supply Regions

A significant share of the global demand for coal is metallurgical coal. With a limited global supply base, the ability for the U.S. to expand its production of metallurgical coals beyond the traditional supply regions would enhance the ability for U.S. coals to be exported. By way of example, there are large metallurgical coal reserves in Oklahoma, Arkansas and Alaska that have not been developed.[16] All three states could develop high quality metallurgical coal projects that would produce coal attractive to the international market if appropriate infrastructure is concurrently developed.

## Transportation & Shipping Considerations

The nation's coal transportation and shipping network would benefit from various infrastructure improvements. It should be noted that the infrastructure improvements highlighted in this report would also benefit industries in addition to coal, including agriculture, manufacturing and other commercial industries dependent on a sound transport network.

### U.S. East Coast

Terminal capacity on the U.S. East Coast is generally adequate. Efforts are underway to deepen the Newport News channel to 55 feet and make other improvements[li] which will improve navigational efficiencies, allow safe passage of vessels in and out of the harbor, and improve accommodation of the existing fleet. Similar opportunities exist at other eastern U.S. ports; dredging and maintaining key shipping channels to accommodate large, more cost-effective vessels and maximize navigational efficiencies would help to enhance the competitiveness of U.S. coal exports.

Train availability is periodically an issue, particularly if shipments are not somewhat ratable.[17] Further, rail and terminal preference are generally given to higher value shipments, i.e., metallurgical coals, which means steam coal exports may get short shrift.

[16] Farrell-Cooper's Bull Hill mine in Oklahoma was idled in 2017.
[17] Ratable refers to a steady and/or predictable schedule of movements upon which the railroad can plan.



AMERICAN OVERSIGHT

EXT-18-2615-G-000264

**U.S. Gulf Coast**

Coal exported through the U.S. Gulf Coast is either railed or barged. The railed coal goes to one of the rail terminals where it is transloaded into ocean-going vessels. The barged coal goes to one of the barge-served terminals where it is unloaded and then reloaded into ocean-going vessels or loaded directly into an ocean-going vessel through mid-stream loading.

The rail terminals in the Gulf are adequate for current volumes. In addition, several can be expanded if market conditions warrant. Train availability is periodically an issue, particularly if shipments are not somewhat ratable.

The barge terminals combined with the mid-stream loading option is adequate for current export levels. Mid-stream loading can be expanded to accommodate larger volumes if market conditions warrant. Barging, or more specifically the maintenance of the inland water system is more of an issue for coal exports through the Gulf than is terminal capacity.

The inland waterways transportation systems requires consistent maintenance. Maintenance refers to both maintenance/modernization of the over 170 locks and dams and maintenance of the channels. In 2014, the National Waterways Foundation released a study performed by researchers at the Universities of Kentucky and Tennessee[iii] that analyzed the economic impacts of preserving the current inland waterways transportation system and expediting the construction of lock and dam modernization projects so that they would be completed in 10 years rather than the current estimate of more than 20 years. The study concluded that there were significant impacts associated with lock outages which could be minimized by accelerating the modernization efforts.

The remaining major project affecting coal is the Olmstead locks, the last locks on the Ohio River before it flows into the Mississippi River. Locks 52 and 53, which have consistently been bottlenecks when water levels are low, are being replaced. Every ton of export coal originating on the Ohio River which is barged to the U.S. Gulf will pass through this lock. Recent data on the Olmsted Locks and Dam indicate this project will be completed in 2019.[iii]

While there are other lock and dam modernization projects that are important to the inland waterways, for coal destined to the export market through the U.S, the projects of most importance are those on the Ohio River, including modernization of the Greenup Lock and the J.T. Myers Lock.

According to the industry, what has become an increasingly large issue for barging is insufficient maintenance of the river channels. The lack of regular dredging has significantly restricted movements on the inland waterways, a situation that is exacerbated during periods of low water.

Dredging is also an issue with respect to the loading of vessels in the U.S. Gulf. The Mississippi River is the maritime highway from the central portion of the U.S. Exports that travel to the U.S. Gulf via the Mississippi River include coal, petroleum coke and agricultural products. The ability to accommodate larger ocean vessels improves the competitiveness of all of the products. Recent legislative attempts to direct the Secretary of the Army to dredge and maintain a 50 foot deep navigational channel from Baton Rouge to the Southwest Pass sea buoy[iv] have failed.



AMERICAN OVERSIGHT

EXT-18-2615-G-000265

U.S. West Coast

The limited capacity of export terminals on the U.S. West Coast has greatly limited the ability to export western coals. The non-U.S. West Coast options for western bituminous coals include the U.S. Gulf (including direct rail to Houston), the Mexican port of Guaymas, and possibly the Great Lakes (with transloading in Quebec).[18] The alternatives have transportation disadvantages compared to U.S. West Coast terminals in California which can only be overcome with strong market conditions.

Powder River Basin coal exports are limited to the export terminals in British Columbia, Canada (e.g., Westshore and Ridley), the Great Lakes (with transloading in Quebec), and the U.S Gulf. While the market price will occasionally allow for these alternative transportation options, none are efficient compared to having a coal terminal sited in the Pacific Northwest.

The Los Angeles area was once host to a 10 million ton transloading facility (referred to as the LAX Terminal or LAXT). LAXT was decommissioned in 2001 when the expected throughput volume did not materialize. While some nearby terminals have continued to handle coal, the possibility of a larger terminal took hold when a local developer entered into an agreement in 2013 to build a new shipping terminal on the old Oakland Army Base called the Oakland Bulk and Oversized Terminal (OBOT). The agreement contained no prohibition regarding coal throughput and the developer subsequently proceeded with plans to transload up to 10 million tons of coal per year. The plan was put on hold when the Oakland City Council passed a resolution that determined coal shipments were "a substantial danger to the people of Oakland." The developer appealed in 2016; a May 2018 ruling in favor of the developer stated that the ban did not "contain enough evidence to support the conclusion that the proposed coal operations would pose a substantial danger to people in Oakland." The City Council has appealed the decision.

The efforts to build the Millennium Bulk Terminals-Longview LLC (MBT-Longview Terminal) in the Pacific Northwest have also been challenging throughout its six-year and counting permitting process.[19] The MBT-Longview Terminal is seeking to build a coal transloading facility with an initial throughput capacity of 25 million tonnes with expansion potential up to 44 million tonnes.[iv] As detailed in the following section of this report, despite major accomplishments the timing to obtain permits remains uncertain. A state environmental impact statement (EIS) concluded that the terminal met all environmental standards, yet the State of Washington denied a water certification. The Federal Draft EIS was published in September 2016 with similar conclusions but has not been finalized by the U.S. Army Corps of Engineers.

The challenges encountered at Oakland and Millennium demonstrate the mountains that must be scaled to move forward with new coal terminals that would enable increased exports of western U.S. coals.

---

[18] Montana bituminous coal is primarily exported through British Columbia.

[19] The Millennium Terminal is the most likely terminal to move forward at this time. Permits were submitted in February 2012.



AMERICAN OVERSIGHT

### Funding

Funding for a number of the identified projects could be available from the Harbor Maintenance Tax (HMT) which is a fee collected from users of the maritime transportation system to fund U.S Army Corps of Engineers' operation and maintenance activities.[20] According to the American Great Lakes Ports Association, about $1.6 billion is collected annually but disbursement of the funds has been limited by Congress.[lvi] As of January 1, 2018, there was an excess balance of about $9 billion in the HMT Fund.

The Water Resources Reform and Development Act of 2014 called for the full use of HMT revenue and provided spending targets for the period between FY 2015 and FY 2025.[lvii,lviii] The spending targets started at 67% of revenues and rose to 100% of revenues. For the first three years, i.e., FY 2015 through FY 2017, Congress complied with the targets. The spending targets are a minimum; nothing prevents higher spending targets.

In January 2018, the nation's ports reached an agreement on the sharing of the annual distribution. The agreement reportedly requires that 10% of the funds go to each of the six port regions (North Atlantic, South Atlantic, Great Lakes, Gulf, Pacific Northwest and Pacific Southwest) and 10% go to emerging harbors. This distribution can be changed.

## Institutional & Regulatory Factors

### Barriers to Coal Export Terminal Development

As noted throughout this report, opportunities for U.S. West Coast coal exports to supply high growth markets in Asia have been restricted due to a lack of port capacity. This led to significant interest in the development of new export terminals, and a number of projects have advanced to the proposal stage (see Appendix D for proposed U.S. West Coast terminals).

Each of these proposals underwent an exhaustive public review process marked by intense activist opposition, unprecedented review requirements from regulatory and permitting authorities, and lengthy judicial challenges that in some cases remain ongoing. These complex and costly processes inject a high degree of risk and uncertainty that limits capital investment in such projects and serves as a general barrier to development. They therefore warrant further review to identify policy and process reforms that can reduce project risks and uncertainties without compromising longstanding environmental protections.

The case of the Millennium Bulk Terminal proposal in Longview, Washington is instructive in this regard. The nearly $700 million project, first proposed in 2012, would restore an underutilized industrial facility to export up to 44 million tonnes of Powder River Basin coal to markets in Asia. Review of the Millennium project centered on development of its environmental impact statement (EIS). Led by the U.S. Army Corps of Engineers, a three-year Federal review of the proposal culminated in an exhaustive draft EIS exceeding 3,000 pages in length and attracting more than 3,000 public comments.[lix]

[20] The U.S. Harbor Maintenance Tax (HMT) was enacted by Congress in 1986. The HMT is an ad valorem tax paid by the owner of the cargo. While the original tax applied to all cargo, in 1998 the Supreme Court struck down the taxation of export cargo as unconstitutional.



AMERICAN OVERSIGHT

EXT-18-2615-G-000267

The Federal EIS studied potential impacts and mitigation measures related to a broad range of issues – land use, aesthetics, cultural and tribal issues, geologic, hydrologic, and fish and wildlife impacts, railroad and traffic issues, air quality, greenhouse gas emissions, and more. Project developers spent more than $15 million on environmental studies supporting the EIS, and committed to a number of measures to eliminate or mitigate potential adverse impacts. Ultimately, while the draft Federal EIS was generally favorable toward the project, because Federal and state authorities could not agree on a joint scope for the EIS, the Washington Department of Ecology chose to undertake its own 13,500-page EIS for the proposed project.[lx,21]

The final state EIS, released in April 2017, showed that the project could meet all environmental standards. However, it concluded that a coal export terminal at Millennium would result in "unavoidable and significant adverse impacts" that could not be mitigated in nine different areas: social and community resources; cultural resources; tribal resources; rail transportation; rail safety; vehicle transportation; vessel transportation; noise and vibration; and air quality.[lxi] In September 2017, the Washington State Department of Ecology then cited the EIS in denying a key water quality permit under section 401 of the Clean Water Act, in spite of the fact that the EIS concluded there would be no measurable impact to water quality.[lxii] These actions and others triggered a federal lawsuit against the state by project advocates that remains in litigation.

Other proposed export terminals have faced a similar series of regulatory and permitting barriers, and at least two – the Gateway Pacific Terminal and the Morrow Pacific Project – have been cancelled as a result. While these examples illustrate that barriers to such projects will always be significant, there are a number of ways that the federal government can help facilitate a smoother review process that ultimately reduces project risks and uncertainties.

**Review and Permitting Process.** In particular, the environmental review and permitting process is unnecessarily slow and cumbersome. This barrier is not unique to coal export facilities but rather tends to be common with major infrastructure reviews of all kinds. The Trump Administration has taken positive steps to address these shortcomings, particularly as they relate to implementation of the National Environmental Policy Act (NEPA). The Administration has noted that, while NEPA remains a critical tool for ensuring sound environmental decision-making, in the decades since its creation in 1970, project opponents have increasingly sought to use review processes under the law to obstruct and block the development of energy and infrastructure plans.

---

[21] In October 2012, the U.S. Army Corps of Engineers, Washington Department of Ecology, and Cowlitz County agreed to collaborate on a joint National Environmental Policy Act (NEPA)/State Environmental Policy Act (SEPA) document for Millennium. Approximately 3 years later, due to a dispute over consideration of greenhouse gas emissions, state and local authorities chose to undertake their own environmental review.



AMERICAN OVERSIGHT

Executive Order 13766 directed the White House Council on Environmental Quality (CEQ) to begin efforts to address these shortcomings by identifying high priority NEPA projects for expedited consideration. Follow-up directives such as Executive Order 13807 and a related 12-agency memorandum of understanding aim to reduce the length of federal environmental reviews to not more than two years through improved coordination and accountability.[lxiii,lxiv]

Additionally, implementation and legislative codification of a number of policy reforms detailed in the White House's February 2018 *Legislative Outline for Rebuilding Infrastructure in America* would help to address many of the aforementioned regulatory and permitting barriers that have hindered development of coal export facilities.[22] Specifically, recommendations described in Parts 3 and 4 of the outline – *Infrastructure Permitting Improvement* – would greatly reduce Federal barriers to coal exports. These recommendations include:

- Establish firm deadlines to complete environmental reviews and permits (3.I.A.1.)
- Require a single environmental review document and a single record of decision coordinated by a lead agency (3.I.B.1.)
- Clarify that alternatives outside the scope of an agency's authority or applicant's capability are not feasible alternatives (3.I.B.2.)
- Issue new CEQ NEPA regulations to increase efficiency, predictability, and transparency in environmental reviews (3.I.B.3.)[23]
- Focus the scope of federal agency NEPA analysis on areas of special expertise or jurisdiction (3.I.B.4.)
- Curtail costs by allowing for advance acquisition and preservation of rail rights-of-way before NEPA is complete (3.I.B.8.)
- Create incentives for enhanced mitigation (3.I.B.13.)
- Eliminate redundancy, duplication, and inconsistency in the application of clean water provisions (3.I.C.1.)
- Reduce delays for Clean Water Act Section 401 certification decisions and limit decisions to be based on water quality (3.I.C.2.)
- Require timelines to be met under the Magnuson-Stevens Act or allow agency to proceed with action (3.I.D.1.)
- Limit injunctive relief to exceptional circumstances (4.A.)
- Revise statute of limitations for federal infrastructure permits or decisions to 150 days (4.B.)

---

[22] Pages 36-51 of the outline are available at https://www.whitehouse.gov/wp-content/uploads/2018/02/INFRASTRUCTURE-211.pdf

[23] On June 20, 2018, CEQ initiated a preliminary rulemaking seeking comment on potential updates to NEPA regulations. It is available at https://www.federalregister.gov/documents/2018/06/20/2018-13246/implementation-of-procedural-provisions-of-national-environmental-policy-act



AMERICAN OVERSIGHT

**Greenhouse Gas Emissions Considerations.** Another area of significant attention is the consideration of greenhouse gas (GHG) emissions in the review and permitting of coal export facilities. Historically, the scope of NEPA reviews has been limited to potential impacts that are "reasonably foreseeable" and the "proximate cause" of the proposed facility under review.[lxv] Because GHGs associated with coal exported for overseas consumption are far removed from the project under consideration, they have typically been considered to be beyond the scope of the permitting process.

In recent years, however, a number of efforts to reverse this practice were initiated, beginning with guidance proposed by the CEQ in 2014 directing agencies to consider mitigation related to "life-cycle" GHG emissions upstream and downstream from the specific project under review.[lxvi] This guidance was accompanied by a number a lawsuits challenging federal NEPA reviews that did not address such emissions, as well as a similarly expanded approach at the state level.

Prior to finalization of CEQ's guidance in August 2016, treatment of indirect GHG emissions was disparate across individual Federal agencies. In the case of the proposed Millennium coal export terminal, the U.S. Army Corps of Engineers determined that such emissions were beyond the scope of its NEPA review. However, the Washington State Department of Ecology disagreed, instead proposing that project developers develop a GHG mitigation plan that would offset up to two million tons of GHGs annually.[24]

In March 2017, President Trump issued an Executive Order rescinding the CEQ guidance.[lxvii] However, confusion remains regarding the appropriate application of GHG considerations in NEPA reviews, and a growing number of lawsuits involving energy infrastructure projects have challenged the Administration's position. Efforts to reduce project risks and uncertainties associated with continued litigation and dissimilar approaches across the Federal government would benefit from CEQ's engagement to develop updated regulations or guidance clarifying how agencies should address GHGs in NEPA scoping processes.

Aside from the question of whether GHG emissions upstream and downstream from proposed projects warrants NEPA consideration, it is important to note that the impact of expanded coal exports on GHG emissions remains a matter of open debate. For example, the technical report accompanying Washington's final EIS for the proposed Millennium terminal found that when coal extraction activities are included, total net GHG emissions would decrease by over three million tons annually.[lxviii] Moreover, preliminary conclusions of a 2017 analysis by Stanford University found that relaxing constraints of U.S. West Coast coal exports

---

[24] "To address the potential impacts of greenhouse gas emissions attributable to the Proposed Action, the Applicant will prepare a greenhouse gas mitigation plan that mitigates for 100% of the greenhouse gas emissions identified in the 2015 U.S. and International Energy Policy scenario. For operations at maximum capacity this is 1.99 million metric tons CO2e per year from 2028 through 2038...carbon credits could be purchased through existing carbon markets, or through on-site reductions achieved through efficiency measures or changes in technology." Section 5.8 of SEPA EIS, available at http://www.millenniumbulkeiswa.gov/assets/section_5-8_greenhouse_gas_climate_change2.pdf



AMERICAN OVERSIGHT

would reduce global GHG emissions due to substitution effects in U.S. and foreign markets.[lxix] The study also projected a reduction in local air emissions in China and India as a result of U.S. coal displacing higher-sulfur and higher-ash foreign coals.

**Export Facilities on Federal Lands.** Because objections to export facilities are often driven by fundamental and philosophical opposition to the production and use of coal, and given prior examples of divergent approaches between the Federal government and state and local entities, policy reforms recommended within this report may not be sufficient to reduce uncertainties in a manner that enables projects to move forward. Further study is warranted into the long-term potential to reduce export constraints through the development of export terminals on Federal properties that would benefit from a streamlined and simplified review and permitting process.

**International Coal Plant Financing: Multilateral Development Banks**

With more than 900 gigawatts (GW) of coal capacity placed into service worldwide since 2000, and over 600 GW planned or under construction, the potential for U.S. thermal coal exports to supply steadily growing international demand is significant.[lxx] However, the inability for the U.S. and Multilateral Development Banks (MDB) to support these projects may prevent this potential from being realized.

In June 2013, President Obama announced that the U.S. would no longer provide public financial support for construction of new coal-fired power plants overseas.[lxxi] The objective of the President's directive – which was announced as part of his Climate Action Plan – was to limit GHG from coal-fired power plants.

This directive was implemented through Treasury Department guidance[lxxii] which effectively directed U.S. representatives of Multilateral Development Banks (MDBs) to vote against any such projects. Similar restrictions were adopted by the U.S. Export-Import Bank (EXIM) [lxxiii] and the World Bank followed suit shortly thereafter, as did other entities such as the European Bank for Reconstruction and Development and the European Investment Bank.[lxxiv] In response to government and activist pressure, a number of commercial banks also adopted a variety of restrictions.[lxxv] Similarly, while the Asian Development Bank did not institute an explicit prohibition, it discontinued pursuit of most coal projects.

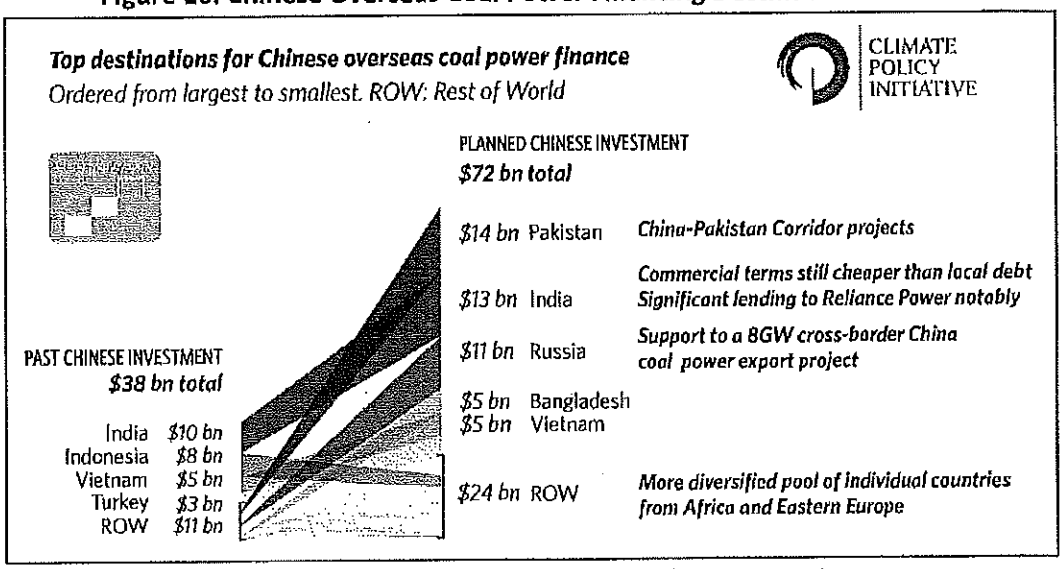
While it is difficult to quantify the impacts of these policies, they are likely significant. Because many developing countries lack robust private capital markets, the importance of government financing support through MDBs and other entities is particularly important. Even minimal participation from such entities can help advance projects otherwise too risky for commercial banks to finance on their own.

In response to the void created by U.S. and MDB funding prohibitions, China, Japan, Korea and other countries stepped in to provide financial support for – and outsized influence over – continued coal development. A 2017 IEA report found that China planned to provide up to $72 billion in investment for new coal-fired power plants in developing countries.[lxxvi] Similarly, Japan is investing $14 billion in new Indonesian coal-fired power plants.



AMERICAN OVERSIGHT

**Figure 16. Chinese Overseas Coal Power Financing Destinations**




**Source: Climate Policy Initiative, Herve-Mignucci & Wang, 2015**
https://climatepolicyinitiative.org/publication/slowing-the-growth-of-coal-power-outside-china-the-role-of-chinese-finance/

This funding is typically leveraged to influence related aspects of energy development in recipient countries. For example, IEA reports that "a large proportion of equipment procurement must come from companies shortlisted as preferred suppliers from the lenders' country. By offering a one-stop-shop, China, Japan and Korean banks simplify the project development and can be vital to a country under pressure to develop new generating capacity."[lxxvii]

These circumstances not only place the U.S. at a disadvantage by limiting the potential for U.S. coals and plant technologies to meet supply international markets, in many cases they result in inferior environmental controls. For example, between 2008 and 2016, China, Japan, and Korea combined to supply over 55 gigawatts of less efficient subcritical boiler technology to developing countries.[lxxviii]

According to the World Coal Association (WCA), a typical one gigawatt subcritical power plant in Southeast Asia emits 1.2 million tonnes of additional carbon dioxide ($CO_2$) annually compared to a supercritical plant of equal size.[lxxix] By this metric, if the subcritical plants supplied by China, Japan and Korea had instead used high efficiency, low emissions (HELE) supercritical and ultra-supercritical boiler technology, annual $CO_2$ emissions from those plants would be nearly 66 million tonnes lower – an amount nearly equivalent to the total annual coal-related emissions in countries such as Thailand and Brazil. These statistics illustrate that, to the extent that U.S.-driven prohibitions on international coal plant financing have led to the deployment of inferior coal plant technologies in developing countries, $CO_2$ emissions have *increased* as a result – precisely the opposite effect intended by their supporters.



AMERICAN OVERSIGHT
EXT-18-2615-G-000272

Reversing these policies and restoring U.S. and MDB support for construction of new coal power plants, therefore, not only holds promise to expand market opportunities for U.S. coal exporters, it presents an opportunity to ensure developing countries have an opportunity to deploy advanced $CO_2$-minimizing HELE technologies, such as the Advanced Ultra Super Critical power plants developed by the U.S. DOE/industry consortium, that they otherwise may not be able to afford. In July 2017, the Trump Administration set the foundation for these changes by rescinding the 2013 Treasury prohibition on financing construction of coal plants internationally through MDBs, committing instead to "help countries access and use fossil fuels more cleanly and efficiently."[lxxx]

Unfortunately, financing prohibitions at most MDBs remain in place, in part because the U.S. holds a minority position in those banks, and other leading countries maintaining significant ownership positions remain opposed to a change in policy. (See Appendix J Coal Financing Policies of Key International Lending Institutions) Nonetheless, U.S. influence remains significant. For example, its 16% share of the World Bank constitutes a supermajority in relation to other countries. Accordingly, the U.S. government could actively encourage MDBs, both directly and through participating member countries, to resume financing coal plants in developing countries. One potential opportunity exists at the Asian Development Bank (ADB), which will soon begin a review of its energy and climate strategy.

Involvement of and guidance from the Trump Administration and Treasury Department could significantly impact both the implementation of current policy as well as the development of new policy at the ADB. In addition to Executive Branch actions, Congress maintains an influential role in MDB policies by virtue of its funding for them through the appropriations process, and thus could be an instrumental component of any reform effort.

One notable exception to MDB opposition to coal financing is the African Development Bank, which continues to support all sources of energy as part of its effort to achieve universal access to electricity in Africa by 2025. In July 2017, the African Development Bank announced the Japan-Africa Energy Initiative, a partnership in which Japan will provide up to US$6 billion to support expanded energy access in Africa, including access to clean coal technologies.[lxxxi] In light of this supportive approach, the U.S. government could proactively engage with the African Development Bank and leaders of African countries seeking to expand electricity access in pursuit of similar partnerships. This effort should include reforms to the Power Africa Initiative to allow coal-related projects to compete for financing aimed at supporting economic growth and development throughout Africa.[lxxxii]

Another model for advancing financing mechanisms could be through bilateral relationships. In 2017, the U.S. and Japan launched the Japan-United States Strategic Energy Partnership (JUSEP) under the framework of the Japan-U.S. Economic Dialogue.[lxxxiii] The core principles of JUSEP are to ensure energy security and universal access to affordable and reliable energy in order to eradicate poverty, including through the deployment of HELE coal technologies. This program, focused on Southeast Asia, South Asia and Sub-Saharan Africa, holds significant promise. It should continue to be a priority and the U.S. should aim to incorporate JUSEP's core principles into similar bilateral efforts.



AMERICAN OVERSIGHT

More recently, in November 2017, a group of 36 national and subnational governments joined to launch the "Powering Past Coal Alliance," which among other things, committed to restricting financing for coal-fired power plants.[lxxxiv] Many of these governments are shareholders in MDBs, and collectively exert significant influence over coal-related MDB policies. In response, the Trump Administration is preparing to lead the formation of an alliance to counter those policies and work to advance energy access and security through responsible use of advanced fossil fuel technologies. Continued development and operationalization of this concept may be a means through which to leverage policy changes at MDBs and related financing entities.

**International Coal Plant Financing: Domestic Entities**

A number of domestic entities also have a potential role in supporting continued development of coal-fired power plants overseas. These are discussed below.

**Export Import Bank of the United States.** The Export-Import Bank of the United States (EXIM Bank) is the official export credit agency of the U.S. government. Its mission is to support American jobs by providing working capital to facilitate the export of U.S. goods and services. Historically, energy resources, including coal exports and overseas coal-fired power plants were an important part of the bank's portfolio.[25] In 2013, however, the EXIM Bank adopted guidelines prohibiting support for projects associated with coal mining or electricity generation except in rare circumstances.[lxxxv] The Bank followed this policy by leading a coalition of international export credit agencies to sign an agreement under the OECD committing to the same prohibitions.[26]

While Congress has acted to block funding for the EXIM Bank's 2013 prohibition on support for coal projects, and the Trump Administration has indicated it intends to reverse the decision administratively, the Bank has remained largely dormant since 2015 due to the lack of a quorum needed to approve major projects and policy changes. Prioritizing the fulfillment of the EXIM Bank Board will allow the agency to realign with the Administration's official Treasury Department guidance, grant new coal exporters access to the EXIM Bank financing and allow existing exporters to increase their financing facilities, thus supporting the growth of U.S. coal exports.

[25] Most recently, in 2012, EXIM provided a $90 million loan guarantee to support East Coast coal exports.
[26] Participating countries included Australia, Canada, the EU, Korea, Japan, New Zealand, Norway, Switzerland, and the U.S. http://www.oecd.org/newsroom/statement-from-participants-to-the-arrangement-on-officially-supported-export-credits.htm



AMERICAN OVERSIGHT

**Overseas Private Investment Corporation.** The Overseas Private Investment Corporation (OPIC) is charged with mobilizing private capital to help foster economic development in emerging economies, and in doing so, advance U.S. foreign policy objectives. While perhaps lesser known, OPIC's importance in international finance and economic development is significant. According to the agency, it has supported more than $200 billion of investment in over 4,000 projects, generated an estimated $75 billion in U.S. exports and supported more than 277,000 American jobs.

While OPIC's mission and focus makes it well-suited for supporting foreign policy objectives by enhancing opportunities for U.S. coal exports, in 2009, a legal settlement with non-governmental organizations committed OPIC to a cap on greenhouse gas emissions from its portfolio of investments that was then codified by Congress in appropriations legislation later that year.[lxxxvi] According to OPIC's most recent environmental and social policy guidance issued in January 2017, the agency has committed to reduce GHGs associated with its portfolio by 50% over a 15-year period (2008-2023).[lxxxvii] As a practical matter, these restrictions have effectively barred OPIC from supporting coal-related projects.

Of note, Congress is currently considering important reforms to OPIC and related international development assistance programs. The "Better Utilization of Investments Leading to Development Act of 2018, or "BUILD Act," would create a new International Development Finance Corporation to assist developing nations efforts to realize broad-based economic growth and poverty reduction.[lxxxviii] This legislation has bipartisan support in Congress and the White House has signaled its backing as well. Given the central importance of electricity access to achieving these goals, joint efforts by Congress and the Trump Administration would help ensure that projects authorized by the BUILD Act explicitly allow development and use of all energy resources, including coal.

**U.S. Agency for International Development.** The U.S. Agency for International Development (USAID) is an independent federal agency charged with furthering America's interests while improving lives in the developing world. Africa is a major focus area of USAID, and in 2013, President Obama launched the Power Africa initiative, a public-private effort led by USAID and aimed at increasing electricity access in sub-Saharan Africa.[lxxxix] Working with program partners such as EXIM Bank, OPIC and the Millennium Challenge Corporation, the goal of Power Africa is to establish 60 million new electricity connections powered by "30,000 megawatts of new and cleaner generation."[xc]

To date, Power Africa has helped 90 projects comprising nearly 7,500 megawatts move forward. While the initiative does not include an explicit prohibition on support for coal-related projects, an August 2016 report to Congress stated that the program "adheres to the policy articulated in President Obama's Climate Action Plan" pertaining to a ban on international support for coal-fired power plants, and the program's current Roadmap states its intent to "prioritize economically viable renewable energy transactions where possible, but also focus on non-renewable projects with lower carbon emissions, such as natural gas."[xci,xcii]



AMERICAN OVERSIGHT

The Trump Administration has continued support for the program and its goals, but in March 2018 launched "Power Africa 2.0," which expands electricity access targets and commits to improving distribution and transmission infrastructure as well.[xciii] Publicly available information on the modified initiative does not appear to address the eligibility of or emphasis on coal-related projects.

**U.S. Trade and Development Agency.** The U.S. Trade and Development Agency (USTDA) is an independent Federal agency that helps companies create U.S. jobs through the export of U.S. goods and services for priority development projects in emerging economies. Specifically, USTDA aims to link U.S. businesses to export opportunities by funding project preparation and partnership building activities. The energy sector is a priority focus of USTDA. In May 2018, it announced a reverse trade mission with India, Indonesia and Vietnam focused on coal-fired emissions control technologies.[xciv] Foreign delegates participating in such meetings gain an opportunity to build relationships with U.S. industry representatives that can be developed into longer-term trade partnerships.

Similarly, USTDA is soliciting applications for proposals aimed at facilitating the development of cleaner coal infrastructure projects overseas. According to USTDA, this effort hopes to build upon prior agency successes in markets such as Namibia, where a USTDA-funded study led to environmental and performance upgrades of a coal-fired power plant that the country relies on for affordable and reliable electricity.[xcv] It would be beneficial for these USTDA activities to be continued and expanded.

**Table 7. U.S.-based entities with a role in coal financing and export development.**

| Bank/Entity | Support Mechanisms | Coal Status/Policy |
|---|---|---|
| Export-Import Bank (EXIM Bank) | Project finance, loan guarantees, export credit insurance for U.S. exporters | 2013 guidelines prohibit support for projects associated with coal mining or coal-powered electricity generation |
| Overseas Private Investment Corporation (OPIC) | Direct loans, loan guarantees, investment funds | Cap on project GHG emissions effectively serves as prohibition on coal-related projects |
| U.S. Agency for International Development (USAID) | Strategy development, partnership building, technical assistance | No explicit policy, but coal not included among 90 projects supported through USAID-led Power Africa initiative |
| U.S. Trade and Development Agency (USTDA) | Partnership building, reverse trade missions, studies | No restrictions on coal; funding coal-focused reverse trade missions and soliciting applications related to clean coal infrastructure projects |



AMERICAN OVERSIGHT

**Energy Access, Poverty Elimination and Energy Security**

Continued growth in global demand for coal-fired power originates with developing countries' prioritization of economic growth and alleviation of energy poverty. In fact, this is the *central purpose* of developed countries' historical support for construction of new coal plants, and it has proven undeniably successful. According to the IEA[xcvi], 1.2 billion people gained access to the electricity grid between 2000 and 2017. Coal-fired power comprised 45% of this electrification, providing affordable energy to 540 million people (often through MDBs and other government-backed financing mechanisms that have since imposed prohibitions on support for coal-powered electricity access).

It is difficult to overstate the contributions of this electrification to human health and well-being in these developing countries. Modern life is inconceivable without adequate access to electricity. Electricity makes life easier and healthier, improving nutrition and freeing time for other productive pursuits. It makes modern education and medicine possible. It is critical to reducing infant mortality and undernourishment. It helps provide adequate supplies of clean water for people and crops. It makes agriculture more efficient through mechanization and affordable fertilizers. It makes people more mobile. And it connects them to a broad array of information through various communication technologies that all run on electricity.

> "The importance of coal in the global energy mix is now the highest since 1971. It remains the backbone of electricity generation and has been the fuel underpinning the rapid industrialization of emerging economies, helping to raise living standards and lift hundreds of millions of people out of energy poverty."
>
> Fatih Birol, IEA Executive

That importance continues today. As of 2016, an estimated 1.1 billion people still live without access to electricity – between one-seventh and one-eighth of the global population.[27,xcvii] By 2030, IEA projects that nearly 400 million of these people will gain access, in large part due to new coal-fired power plants, to over 600 gigawatts of electricity which are currently planned or under construction around the world. Accordingly, direct and indirect U.S. government support for financing this electrification would not only advance longstanding economic development and humanitarian objectives but also serve to enhance diplomatic and trade relationships that could enable new partnerships to expand U.S. exports of thermal coal.

[27] IEA defines electricity access as a minimum of 250 kilowatt hours (kWh) per year for rural households (of five people) and 500 kWh per year for urban households. "In rural areas, this level of consumption could, for example, provide for the use of a floor fan, a mobile telephone and two compact fluorescent light bulbs for about five hours per day. In urban areas, consumption might also include an efficient refrigerator, a second mobile telephone per household and another appliance, such as a small television or a computer." International Energy Agency, 2014. Defining and modelling energy access. *World Energy Outlook*. Available at: http://www.worldenergyoutlook.org/resources/energydevelopment/definingandmodellingenergyaccess/.



AMERICAN OVERSIGHT

The importance and value of such efforts may be best exemplified by prior missed opportunities. For example, a 2015 analysis by George David Banks of the American Council on Capital Formation described the implications of U.S. opposition to a clean coal plant in Pakistan:[xcviii]

> *"This shift was best exemplified in December 2013 when the United States – albeit unsuccessfully – opposed Asian Development Bank (ADB) funding for a supercritical coal-fired plant in Pakistan. In overcoming U.S. disapproval, ADB officials claimed that the power plant would help address acute power shortages of up to 20 hours per day and save the Pakistani economy $535 million by replacing imported oil with coal. Power shortages cost the Pakistani economy an estimated 2% of its annual economic growth....Blocking funding to the plant would have reduced Pakistan's access to affordable power that is needed far job creation, increasing the odds of political instability – a risk that the United States should seek to reduce, particularly given Pakistan's nuclear weapons stockpile."*

In addition to highlighting the importance of energy access to broader U.S. geopolitical interests, this example also serves to remind that enhancing the energy security of allied nations presents similar diplomatic opportunities around the world. We have already seen the impact of U.S. liquefied natural gas (LNG) exports as a potential antidote to geopolitical meddling in energy markets. Expanded U.S. coal exports could play a similar role.

> ***"Ukraine already tells us they need millions and millions of metric tons right now. There are many other places that need it, too. And we want to sell it to them, and to everyone else all over the globe who need it."***
>
> **President Trump, June 2017**

Ukraine, for example, faces energy security challenges related to disputes with Russia over critical natural gas deliveries as well as coal supply uncertainties stemming from Russian-backed separatists contesting the eastern portion the country (the source of most coal production). In July 2017, the government of Ukraine awarded Pennsylvania-based Xcoal Energy a contract to supply its state-owned power generation company with 700,000 tons of coal. The partnership, which was facilitated by the U.S. Department of Energy (DOE) and U.S. Department of Commerce (DOC), illustrates the potential for U.S. political leadership to enhance allies' energy security while also providing a boost to the domestic coal industry.[xcix] Administration efforts to leverage diplomatic relationships would help identify and facilitate similar partnership opportunities elsewhere around the world.



AMERICAN OVERSIGHT

**Trade Barriers**

As detailed throughout this report, increasing coal exports has the potential to improve the U.S. balance of trade while also providing a boost to coal producers facing uncertainty in domestic markets, both of which are key priorities of the Trump Administration. In addition to the aforementioned barriers that indirectly limit the potential to advance exports, there are numerous trade-specific challenges and opportunities that must be considered and addressed.

First and foremost among these are opportunities to elevate coal exports specifically as part of trade negotiations and international trade development efforts. The case for U.S. coal is strong – it provides a high-quality, reliable and competitive source of supply that can also provide market diversity and an energy security hedge for importing countries. It is also a volatile subject in broader ongoing trade negotiations. For example, in the span of just two weeks in June 2018, China reportedly first offered to increase its imports of U.S. coal in an effort to reduce its $375 billion trade surplus with the U.S., then promptly reversed course and included coal on a list of potential retaliatory tariffs issued in response to $50 billion of Trump Administration tariffs on Chinese goods.[c] On August 8, 2018, China's Ministry of Commerce announed that it would proceed to impose a 25% tariff on $16 billion worth of U.S. imports, including coal.[ci]

This rapid turn of events illustrates how escalating trade tensions are a serious concern that could result in significantly restricted markets for U.S. coal. In addition to China, a number of other countries have initiated retaliation measures to U.S.-imposed tariffs on steel and aluminum imports, and at least one – Turkey – has included coal among the list of targeted U.S. products.[cii] Amidst escalating tensions, on August 15, 2018, Turkey raised the level of its coal tariffs from 10% to 14%. Moreover, beyond specific barriers such as tariffs, the general ongoing friction on trade issues threatens to reduce the willingness of U.S. trade partners to enter into agreements to buy U.S. energy resources.

Meanwhile, a number of key markets have long imposed unfair tariffs on U.S. coal imports. For example, Indonesia places a 5% tariff on imports of U.S. coal, while China places 6% and 3% tariffs on U.S.-based thermal and metallurgical coal, respectively.[ciii] These artificial costs exacerbate the geographical disadvantage of U.S. coal exports to Asia and impact the competitiveness of deliveries to the region, especially from the East Coast. U.S. government efforts to reduce or eliminate these tariffs would facilitate increased coal export opportunities.

Ultimately, while the potential for current tensions to negatively impact U.S. coal is high, heightened attention to global trade issues also presents an opportunity for U.S. negotiators to expand market access for U.S. coal. Efforts by the DOE, U.S. trade negotiators and diplomatic officials to actively encourage such purchases and undertake dedicated steps to identify and pursue bilateral and multilateral opportunities throughout the world would also facilitate opportunities for expanded U.S. coal exports.



AMERICAN OVERSIGHT

## Technological Considerations

**Technological Improvements in Mining.**[28] Another important consideration on the supply side is ensuring that the industry is keeping up with the potential technological improvements in mining and preparation that would allow U.S. producers to better compete with other producing countries. The coal industry has been challenged in recent years due to adverse market conditions and high debt levels. Producers accounting for about 40% of total coal production went through bankruptcy in the last four years. Demand in 2017 was over 20% below demand in 2012. Not surprisingly, capital expenditures declined during this period.

The industry has identified areas where it can reduce operating costs with capital investments. In the PRB, for example, a move to driverless vehicles has started. In Pittsburgh seam mines, producers have incorporated advanced technology into their longwalls and are now focusing on extending advanced technology to continuous miners which account for a major share of the labor and costs in both longwall and room-and-pillar mines. Many future advances could take advantage of state-of-the-art digital technology, including consolidated data platforms, real-time analytics and optimization, advanced control systems, artificial intelligence and machine learning, and predictive maintenance to improve decision making and reduce downtime across the many interdependent processes involved in a mining operation. Advances can be achieved in most supply regions. Since innovation is capital intensive, Federal support would accelerate technology integration.

**Coal Washing and Upgrading.** Coal washing and upgrading technologies are designed to reduce the amount of mineral matter and/or moisture in coal, which can be particularly important for coal slated for export. Transporting coal with a higher heat content could reduce transportation costs on a quality adjusted evaluated basis – improving the value proposition for some U.S. coal compared to the international market. In addition, reducing the ash, sulfur and mercury content may also allow U.S. coal to be increasingly competitive in some markets where lower impurities is an attribute that is highly valued. Although coal washing and upgrading technologies are being used globally, further technological improvements may be possible with additional research and development. One potential example would be the development of technologies that could increase the heat content of Powder River Basin coal, especially if export opportunities are expanded.

[28] The forthcoming (Sept. 2018) National Coal Council report, "Power Reset: Optimizing the Existing Coal Fleet" includes a more expansive discussion on improving the cost-competitiveness of U.S. coal through advances in coal mining and production technologies. See NCC website www.NationalCoalCouncil.org.



AMERICAN OVERSIGHT

EXT-18-2615-G-000280

**Exports of U.S. Advanced Coal Technologies.** Some international markets for U.S. coals are restricted or could become restricted due to coal quality constraints or lack of environmental technologies/controls at end-user facilities. For example, some higher-sulfur coals from the Eastern U.S. (NAPP, ILB) are limited/excluded from certain Asian and European markets because of sulfur constraints. Growing Asian markets are increasingly recognizing the need to control emissions but still have a number of unscrubbed/uncontrolled power plants, precluding the use of certain U.S. coals.

While it is beyond the scope of this report, it would be beneficial to continue U.S. efforts to research, develop and deploy advanced coal technologies that could be retrofit to existing plants and/or adopted in new plant construction that would enable other nations to make use of a wider range of U.S. coals. For example, installation of state-of-the-art, commercially available emissions controls, such as sulfur dioxide ($SO_2$) scrubbers, would enable fuel sulfur limits to be modified thus enabling a wider range of coals to be used with an accompanying net reduction in $SO_2$ emissions.

A number of nations, including China, India and Japan, are deploying HELE coal plants employing Advanced Ultra Super Critical technologies. The opportunity exists for the U.S. to pursue technology exchanges with these nations as part of its efforts to develop and adopt advanced coal technologies in the U.S. and abroad, enhancing markets for U.S. coals in the process.



AMERICAN OVERSIGHT

## Chapter 4. Conclusions & Recommendations

Global demand for coal-fired power is driven in large part by developing nations' efforts to grow their economies and alleviate energy poverty. The Trump Administration has emphasized its interest in unlocking U.S. energy and coal export potential to service rising international market demand and aid its global partners in their quest to end energy poverty and advance energy security. Unleashing U.S. coal exports will advance both U.S. and global energy security objectives.

The primary strategic objective recommended by the National Coal Council is to advance U.S. coal exports as part of the nation's efforts to achieve U.S. energy dominance, enhance international energy security and eliminate global energy poverty. This report provides recommendations in support of these objectives in the areas of coal production, transportation, trade and international relations, and regulatory reform. Executing these recommendations will result in a more robust role for the U.S. in global coal trade, providing economic benefits to the U.S. as well as economic, environmental and social benefits to our trading partners.

To facilitate execution of the recommendations in this report, NCC recommends establishing a DOE-led, government-wide Coal Exports Task Force (or Energy Exports Coordination Task Force) to monitor and coordinate policy developments relevant to advancing coal exports. Participants should include all agencies engaged in energy development and international relations, including the U.S. Departments of Energy, Interior, State and Treasury, as well as USTDA, OPIC and the EXIM Bank, among others.

---

The competitiveness and growth of U.S. coal exports depends primarily on the ability of U.S. producers to mine and ship coal to end-use markets at an overall evaluated delivered cost that is economically competitive vis-à-vis other global coal suppliers and vis-à-vis other energy sources[29]. Numerous opportunities exist to enhance the competitiveness of U.S. coal exports at every link in the coal supply chain and by addressing various trade and regulatory barriers. NCC's primary strategic recommendations are:

- **Coal Production.** Deploy advanced coal mining and processing technologies to reduce production costs, thus making U.S. coals more competitive in international markets. Enhance U.S. coal mining operations with the greatest export potential in both traditional and non-traditional coal supply regions.
- **River Transport.** Streamline the funding to the nation's inland waterway system locks and dam infrastructure to facilitate the cost-efficient flow of U.S. coals to international markets via U.S. East and Gulf Coast ports.

[29] Such as LNG, petroleum coke, etc.



AMERICAN OVERSIGHT

EXT-18-2615-G-000282

- **Ports & Terminals.** Enhance coal export port and terminal capacity on the U.S. Atlantic, Gulf and Pacific coasts.
- **Trade and International Relations.** Eliminate policy and technology barriers to the deployment of advanced coal facilities in international markets. Additionally, capitalize on trade opportunities, assessing policies and approaches that inhibit or promote U.S. trade and U.S. coal exports.
- **Economic Development in International Markets.** Support efforts to advance economic growth in international markets and the global development of advanced coal technologies, as well as the elimination of regulatory and institutional barriers to the deployment of coal-fired facilities worldwide.

NCC recommends the following tactics be employed to achieve these strategic objectives.

Coal Production

**Strategic Objective 1: Deploy advanced coal mining and processing technologies to reduce production costs, thus making U.S. coals more competitive in international markets.**

Recommended Tactics:

- Support research and development (R&D) initiatives to develop more efficient mining technologies to reduce the cost of extracting coal. Initiatives for new production-enhancing technologies in coal mining should include automation, robotics, big data/advanced computing, machine learning/artificial intelligence, and remote mining technologies.
- Support R&D to develop advanced coal preparation and upgrading technologies – such as coal fines/waste coal recovery and coal drying/coal beneficiation – to increase coal heat content[30], remove impurities and lower costs.

**Strategic Objective 2: Enhance U.S. coal mining operations with export potential in both traditional and non-traditional coal supply regions.**

Recommended Tactics:

- States may benefit from offering a range of support mechanisms to induce continued mining activity. One such initiative was undertaken by the State of Virginia whose legislature passed tax credits for metallurgical coal production from thin-seamed underground mines and surface mines. Tax credits that reduce severance or other forms of public payments associated with investment in new mining capacity might also prove effective and could well be revenue positive when applied appropriately.
- Identify and support infrastructure projects in non-traditional coal supply regions, including Oklahoma, Arkansas and Alaska.
- Eliminate barriers to production of coal on Federal lands associated with bonus payments, rents and uncertain royalty payments.
- Assess any future mining regulations, such as the Stream Protection Rule repealed by the Trump Administration, to determine their impacts on U.S. coal exports.

[30] Heat content is measured on a Btu per pound (Btu/lb) or on a kilocalorie per kilogram basis (kcal/kg).



AMERICAN OVERSIGHT

River Transport

**Strategic Objective: Streamline the funding to the nation's inland waterway system locks and dam infrastructure to facilitate the cost-efficient flow of U.S. coals to international markets via East and Gulf Coast ports.**

Recommended Tactics:

- Support regular maintenance and dredging of inland waterway river channels to ensure non-restricted movements of coal barge traffic especially during period of low water.
- Deploy funds from the current excess balance of fees collected from the Harbor Maintenance Tax and support efficient funding levels from the Inland Waterways Trust Fund to maintain and modernize inland waterway locks and dams, specifically those on the Ohio River as is being done with the Olmstead Locks and Dam projects.

Ports & Terminals

**Strategic Objective: Enhance coal export port and terminal capacity on the U.S. Atlantic, Gulf and Pacific coasts.**

Recommended Tactics:

- Dredge key export ports and ship channels to accommodate larger vessels – such as Capesize and Baby Capes – thereby lowering shipping costs and enhancing the delivered economics of U.S. eastern and interior basin coals in international markets.
- Facilitate improved planning and cooperation between state and Federal authorities responsible for environmental review and permitting of proposed projects, limit state misuse of such processes aimed at challenging exports of U.S. produced goods.
- Undertake further study to assess the potential to reduce export constraints through development of export terminals on Federal properties.
- Identify and analyze bottlenecks and infrastructure upgrades at existing export terminals and assess opportunities to address logistical constraints to enable optimal utilization of the U.S. coal export transportation system (rail, waterway, port).
- Advance comprehensive reforms to NEPA and related permitting processes, including relevant proposals described in Parts 3 and 4 of the *Infrastructure Permitting Improvement* portion of the White House's February 2018 *Legislative Outline for Rebuilding Infrastructure in America.*
- Clarify the application of GHG considerations in NEPA reviews associated with development of U.S. coal export facilities. Engage CEQ to develop updated regulations or guidance clarifying how agencies should address GHGs in NEPA scoping processes.



AMERICAN OVERSIGHT

**Trade & International Relations**

**Strategic Objective 1. Eliminate policy and technology barriers to the deployment of advanced coal facilities in international markets.**

Recommended Tactics:

- Reform Export-Import (EXIM) Bank of the U.S. policies and guidelines to allow support for projects associated with coal mining or high efficiency, low emissions (HELE) coal generation. Finalize appointments to the EXIM Bank board to facilitate reforms.
- Revise Overseas Private Investment Corporation (OPIC) and U.S. Agency for International Development (USAID) policies to allow for support for coal generation projects using HELE technology.
- Reassess U.S. policy prohibiting public financial support for construction of coal power plants overseas instituted under the Obama Administration and implemented through the U.S. Treasury Department (Multilateral Development Banks). These policies put the U.S. at a disadvantage as other nations step in to fill the financing void and secure lucrative contracts for fuel supplies, technology, equipment and operations. Restore U.S. and MDB support for construction of HELE coal power plants in international markets.
- Promote installation of state-of-the-art, commercially available emissions controls on international coal-fired facilities to expand opportunities for more varied qualities of U.S. coal to be exported.
- Work with key end-use nations to make the technical and economic case that new power plants should be designed for a wide range of coal qualities.

**Strategic Objective 2. Capitalize on trade expansion opportunities, assessing policies and approaches that inhibit or promote U.S. trade and U.S. coal exports.**

Recommended Tactics:

- Pursue opportunities to expand market access for U.S. coal through the reduction or elimination of trade barriers, while avoiding escalation of barriers that could conversely result in reduced access to markets.
- Support U.S. Trade and Development Agency (USTDA) initiatives to advance exports of coal and advanced coal technologies through development of cleaner coal infrastructure projects overseas.
- Proactively engage with the African Development Bank and leaders of African nations to expand electricity access in pursuit of partnership opportunities. Work with Power Africa to reform policies and allow coal-related projects to compete for financing in support of economic growth and development throughout Africa.
- Pursue bilateral relationships that advance efforts to ensure energy security and universal access to affordable and reliable energy in order to eradicate poverty. Model these partnerships on the Japan-United States Strategic Energy Partnership (JUSSEP).
- Facilitate relationships between U.S. coal exporters and overseas markets similar to the recent Ukraine coal export agreement.



AMERICAN OVERSIGHT

**Economic Development in International Markets**

**Strategic Objective: Support efforts to advance economic growth in international markets and the global development of advanced coal technologies, as well as the elimination of regulatory and institutional barriers to the deployment of coal-fired facilities worldwide.**

Recommended Tactics:

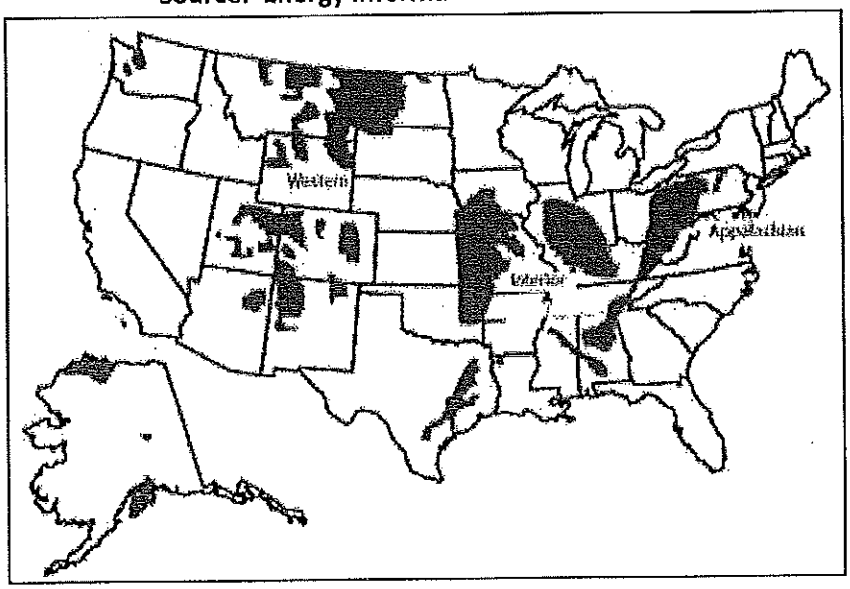
- Support initiatives such as the BUILD Act to create a new International Development Finance Corporation to assist developing nations' efforts to achieve broad-based economic growth and poverty reduction.
- Assess the negative environmental impacts associated with restrictive financing for deployment of high efficiency, advanced coal technology facilities in international markets.
- Assess opportunities for U.S. industry to export advanced coal technologies to international markets and the associated environmental and poverty-reduction benefits for emerging economies.
- Support efforts to establish a global fossil fuels alliance to promote energy access and security through responsible use of advanced fossil fuel technologies.



AMERICAN OVERSIGHT

## *APPENDIX A: Coal Statistics*

**U.S. Coal Production Basins**
**Source: Energy Information Administration**






AMERICAN OVERSIGHT

EXT-18-2615-G-000287

# National Mining Association -- Most Requested Coal Statistics 2010-2017

https://nma.org/wp-content/uploads/2017/12/c_most_requested.pdf

## Most Requested Statistics - U.S. Coal Industry

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 p/ | 2016 p/ | 2017 p/ |
|---|---|---|---|---|---|---|---|---|
| Production (1,000 Short Tons) * | 1,084,868 | 1,085,539 | 1,016,455 | 984,841 | 1,000,965 | 896,941 | 728,394 | 774,119 |
| East of Mississippi River 2/ | 448,197 | 435,447 | 403,478 | 407,541 | 409,821 | 348,978 | 281,853 | 304,645 |
| West of Mississippi River | 636,671 | 650,191 | 612,985 | 577,301 | 591,144 | 547,963 | 446,541 | 469,473 |
| Appalachia 2/ | 332,104 | 326,017 | 280,363 | 271,559 | 268,833 | 222,116 | 180,477 | 198,735 |
| Interior | 116,093 | 109,430 | 123,115 | 135,982 | 140,988 | 126,862 | 100,776 | 105,910 |
| Western | 636,671 | 650,091 | 612,977 | 577,301 | 591,144 | 547,963 | 446,541 | 469,473 |
| Recovery Factor 3/ | 1,257 | 1,260 | 1,234 | 1,205 | 1,234 | 1,204 | 1,251 | 1,213 |
| U.S. Recoverable Reserves (Bill. Sht. Tons) | 258,518 | 258,518 | 257,645 | 258,729 | 258,729 | 258,868 | 258,197 | 258,850 |
| Recoverable Reserves at Producing Mines (Million Short Tons) 1/ | 17,257 | 16,723 | 16,664 | 16,748 | 16,381 | 16,322 | 15,868 | n/a |
| Total Value of Production ($1,000) | $26,625,109 | $44,031,704 | $42,207,437 | $36,675,318 | $34,031,707 | $24,940,032 | $22,208,267 | $23,207,858 |
| Domestic Distribution (1,000 Short Tons) | 1,045,516 | 1,052,948 | 988,185 | 954,442 | 917,737 | 868,119 | 731,079 | 748,861 |
| Electric Utility Power | 929,063 | 932,484 | 875,864 | 857,982 | 841,892 | 736,444 | 670,554 | 684,749 |
| Coking | 21,653 | 21,454 | 20,751 | 21,474 | 21,227 | 19,709 | 18,495 | 17,556 |
| Other Industrial | 49,260 | 48,259 | 42,536 | 43,055 | 42,948 | 38,459 | 34,849 | 32,670 |
| Residential/Commercial | 3,091 | 2,703 | 2,034 | 1,931 | 1,667 | 1,508 | 1,183 | 1,061 |
| Stocks at End of Year (1,000 Short Tons) | | | | | | | | |
| Consumers 2/ | 181,993 | 161,008 | 162,835 | 154,678 | 164,611 | 202,560 | 167,801 | 142,434 |
| Producer/Distributor | 40,820 | 34,897 | 46,157 | 45,662 | 38,804 | 36,691 | 25,308 | 31,105 |
| Exports (1,000 Short Tons) | 81,716 | 107,259 | 125,745 | 117,058 | 97,257 | 73,998 | 61,571 | 85,853 |
| Imports (1,000 Short Tons) | 18,353 | 13,991 | 9,124 | 8,806 | 11,220 | 11,518 | 8,250 | 7,777 |
| Price Indicators (Avg. $/Short Ton or MMBtu) | | | | | | | | |
| Mine Gate Price Average (Short ton) 2/ | $35.61 | $41.04 | $39.05 | $37.24 | $34.61 | $31.93 | $30.57 | $31.60 |
| Cost of Coal Receipts at Electric Utility Plants ($/MMBtu) | $2.27 | $2.39 | $2.51 | $2.54 | $2.50 | $2.22 | $2.11 | $2.08 |
| Cost of Coal at Electric Utility Plants (receipts) | $46.53 | $47.96 | $47.61 | $48.03 | $45.06 | $43.71 | $42.01 | $41.54 |
| Cost of Coking Coal at Coke Plants (receipts) | $153.59 | $191.44 | $182.65 | $158.99 | $131.41 | $116.69 | $102.00 | $105.89 |
| Cost of Coal Exported (f.o.b. mine) (receipts) | $84.36 | $98.82 | $90.56 | $88.16 | $88.80 | $85.44 | $80.34 | $87.07 |
| Coal Production Price (value/short ton/mine) | $1.77 | $1.83 | $1.86 | $1.86 | $1.72 | $1.58 | $1.62 | $1.65 |
| Railroad Freight Charge, avg. ($/t. Rev./Tons Org.) | $17.00 | $19.36 | $20.40 | $20.65 | $20.11 | $18.00 | 18.48 | 19.42 |
| Quantity of Mining | | | | | | | | |
| Underground (1,000 Short Tons) | | | | | | | | |
| Continuous | 183,264 | 173,118 | 156,863 | 143,827 | 142,874 | 122,260 | 88,327 | 102,541 |
| Conventional & Other | 4,767 | 3,061 | 2,871 | 4,824 | 5,178 | 2,373 | 1,547 | 1,503 |
| Longwall | 150,033 | 169,429 | 182,853 | 186,193 | 201,852 | 153,026 | 142,822 | 150,811 |
| Total Underground Production | 338,108 | 345,608 | 342,587 | 334,845 | 349,904 | 277,658 | 232,696 | 254,845 |
| % of Total Production | 31.0% | 32.0% | 33.7% | 34.0% | 35.0% | 31.0% | 31.9% | 33.0% |
| Total Surface (1,000 Short Tons) 4/ | 747,214 | 739,009 | 674,072 | 649,157 | 648,549 | 619,128 | 495,258 | 519,273 |
| % of Total Production | 69.0% | 68.0% | 66.3% | 66.0% | 64.9% | 69.0% | 68.1% | 67.1% |
| Number of Mines (EIA) | 1,209 | 1,325 | 1,223 | 1,051 | 988 | 893 | 710 | 684 |
| Underground Mines (exclusive mines) | 508 | 508 | 485 | 434 | 392 | 336 | 269 | 264 |
| Surface Mines | 701 | 768 | 710 | 617 | 613 | 522 | 442 | 420 |
| Number of Mine Operations (MSHA) | 1,944 | 1,973 | 1,871 | 1,791 | 1,633 | 1,480 | 1,288 | 1,208 |
| Average Number of Miners (EIA) 2/ | 88,181 | 85,611 | 80,705 | 80,304 | 74,031 | 68,031 | 51,705 | n/a |
| Underground Mines (exclusive mines) | 50,515 | 54,305 | 54,495 | 48,831 | 45,478 | 40,157 | 30,105 | n/a |
| Surface Mines | 38,543 | 32,087 | 26,310 | 31,706 | 28,456 | 25,814 | 21,600 | n/a |
| Average Coal Mining Employment (MSHA) 2/ | 136,201 | 143,840 | 136,339 | 125,445 | 116,318 | 102,971 | 81,878 | 82,543 |
| Number of Mine Injuries 2/ | | | | | | | | |
| Fatal | 48 | 29 | 30 | 30 | 18 | 12 | 8 | 15 |
| All Injuries | 4,501 | 4,508 | 3,878 | 3,548 | 3,323 | 2,655 | 2,019 | 2,234 |
| Production Per Miner Per Hour 2/ | 5.55 | 5.58 | 6.19 | 6.64 | 6.86 | 8.38 | 8.61 | 8.63 |
| Underground Mines | 2.09 | 2.72 | 3.04 | 3.07 | 3.26 | 3.46 | 3.83 | n/a |
| Surface Mines | 9.47 | 8.97 | 8.27 | 9.28 | 10.49 | 10.65 | 10.73 | n/a |

Notes:

p/ Preliminary estimates. r/ Revised. e/ Estimated. n/a Not available.

1/ All active producing coal mines. 2/ The residential/commercial sector included.

3/ Excludes mines producing less than 10,000 short tons of coal during the year.

4/ Includes refuse recovery and other waste. Excludes mines producing less than 10,000 short tons and prep plants with less than 5,000 employee hours.

5/ Includes refuse. 6/ Includes contractor employment.

Sources: U.S. DOE/EIA, Mine Safety & Health Administration, Association of American Railroads, and NMA estimates

Updated: June 2018



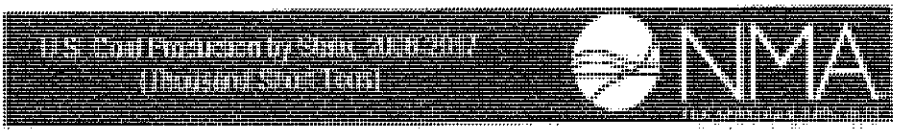


AMERICAN OVERSIGHT

EXT-18-2615-G-000288

## National Mining Association – U.S. Coal Production by State 2006-2017

https://nma.org/wp-content/uploads/2017/11/coal_production_by_state_2017p.pdf




| State | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 r/ | 2017 p/ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East: | | | | | | | | | | | | |
| Alabama | 18,830 | 18,327 | 20,611 | 18,796 | 19,915 | 19,071 | 19,321 | 19,820 | 16,363 | 13,191 | 9,643 | 12,513 |
| Illinois | 32,729 | 32,449 | 32,918 | 33,748 | 33,341 | 37,770 | 49,485 | 52,147 | 57,969 | 56,181 | 43,422 | 48,129 |
| Indiana | 35,119 | 34,003 | 35,893 | 35,555 | 34,950 | 37,429 | 36,720 | 39,902 | 39,297 | 34,295 | 28,757 | 31,418 |
| Kentucky | 120,848 | 115,280 | 120,323 | 107,338 | 104,950 | 108,764 | 90,662 | 80,380 | 77,355 | 61,425 | 42,868 | 42,763 |
| Eastern | 93,617 | 87,050 | 90,258 | 74,218 | 68,053 | 67,830 | 49,758 | 53,501 | 37,350 | 26,161 | 16,772 | 18,542 |
| Western | 27,241 | 28,212 | 30,064 | 33,119 | 36,897 | 40,936 | 42,063 | 40,879 | 39,945 | 33,134 | 26,886 | 23,788 |
| Maryland | 5,054 | 2,301 | 2,860 | 2,305 | 2,585 | 2,937 | 2,260 | 1,926 | 1,978 | 1,927 | 1,616 | 1,662 |
| Mississippi | 3,757 | 3,545 | 2,842 | 3,440 | 4,034 | 2,747 | 2,553 | 3,575 | 3,739 | 3,141 | 2,670 | 2,104 |
| Ohio | 22,722 | 22,578 | 26,251 | 27,981 | 26,702 | 28,166 | 26,328 | 25,113 | 22,262 | 17,031 | 13,254 | 9,136 |
| Pennsylvania | 66,829 | 65,048 | 66,414 | 57,979 | 59,872 | 58,183 | 54,719 | 54,009 | 50,510 | 50,031 | 45,720 | 49,065 |
| Bituminous | 64,500 | 63,483 | 61,713 | 55,248 | 54,668 | 57,051 | 52,364 | 51,349 | 49,076 | 48,077 | 44,220 | 47,217 |
| Anthracite | 1,529 | 1,564 | 1,701 | 1,731 | 1,705 | 1,131 | 1,335 | 2,050 | 1,433 | 1,953 | 1,500 | 1,849 |
| Tennessee | 2,804 | 3,664 | 3,333 | 1,905 | 1,770 | 1,547 | 1,090 | 1,098 | 839 | 887 | 644 | 431 |
| Virginia | 29,740 | 29,348 | 29,212 | 21,175 | 22,385 | 23,523 | 18,965 | 16,618 | 15,053 | 13,914 | 12,912 | 13,205 |
| West Virginia | 152,374 | 151,480 | 157,278 | 135,971 | 135,207 | 134,652 | 129,425 | 112,716 | 112,187 | 95,833 | 79,751 | 82,733 |
| Total East | 430,046 | 427,004 | 431,334 | 405,904 | 404,340 | 414,797 | 423,151 | 405,374 | 397,899 | 347,552 | 290,781 | 303,604 |
| West: | | | | | | | | | | | | |
| Alaska | 1,425 | 1,324 | 1,477 | 1,850 | 2,151 | 2,149 | 2,052 | 1,832 | 1,902 | 1,177 | 933 | 959 |
| Arizona | 8,216 | 7,983 | 8,035 | 7,874 | 7,752 | 8,111 | 7,450 | 7,603 | 6,051 | 6,005 | 5,423 | 6,721 |
| Arkansas | 23 | 63 | 59 | 5 | 22 | 133 | 98 | 59 | 94 | 91 | 49 | 27 |
| California | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Colorado | 36,222 | 36,394 | 32,008 | 28,267 | 25,193 | 25,890 | 20,588 | 24,236 | 24,037 | 19,876 | 12,634 | 15,647 |
| Iowa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kansas | 426 | 426 | 229 | 165 | 113 | 37 | 16 | 22 | 65 | 139 | 27 | 0 |
| Louisiana | 4,114 | 3,127 | 3,813 | 3,957 | 3,945 | 3,955 | 3,971 | 2,610 | 2,035 | 3,429 | 2,798 | 2,979 |
| Missouri | 394 | 236 | 247 | 452 | 458 | 465 | 422 | 414 | 363 | 138 | 214 | 244 |
| Montana | 41,823 | 43,930 | 44,769 | 39,486 | 44,232 | 42,008 | 36,694 | 42,231 | 44,562 | 41,864 | 34,316 | 35,232 |
| New Mexico | 25,913 | 24,451 | 25,845 | 25,124 | 20,591 | 21,522 | 23,452 | 21,369 | 21,963 | 19,675 | 13,343 | 13,158 |
| North Dakota | 30,411 | 29,606 | 29,527 | 29,945 | 28,949 | 28,231 | 27,525 | 27,539 | 29,157 | 28,662 | 28,121 | 28,788 |
| Oklahoma | 1,999 | 1,548 | 1,653 | 966 | 1,016 | 1,145 | 1,054 | 1,136 | 934 | 780 | 654 | 661 |
| Texas | 48,548 | 41,848 | 39,017 | 36,283 | 40,582 | 45,914 | 44,170 | 42,851 | 41,664 | 35,918 | 31,011 | 36,338 |
| Utah | 26,018 | 24,307 | 24,355 | 21,218 | 19,561 | 19,648 | 17,016 | 16,577 | 17,934 | 13,968 | 13,966 | 14,328 |
| Washington | 2,580 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 446,742 | 453,568 | 457,644 | 431,107 | 442,522 | 438,573 | 401,443 | 397,024 | 395,665 | 316,773 | 297,218 | 316,454 |
| Total West | 671,953 | 668,475 | 678,465 | 625,329 | 636,171 | 631,181 | 592,953 | 577,503 | 580,527 | 547,510 | 445,734 | 463,474 |
| Refuse/Unknown | 752 | 1,155 | 1,408 | 2,668 | 5,857 | 1,650 | 1,334 | 1,965 | 1,624 | 1,184 | 851 | 843 |
| Appalachian | 391,159 | 377,601 | 390,218 | 341,443 | 335,348 | 331,017 | 291,925 | 269,672 | 256,979 | 220,700 | 175,626 | 187,887 |
| Interior | 151,393 | 146,668 | 146,586 | 145,811 | 153,553 | 170,322 | 178,961 | 192,934 | 188,624 | 167,428 | 143,917 | 145,164 |
| Western | 619,449 | 621,012 | 633,597 | 584,461 | 591,611 | 587,633 | 543,249 | 520,210 | 542,812 | 377,197 | 423,571 | 430,224 |
| Grand Total | 1,162,786 | 1,144,866 | 1,171,869 | 1,074,823 | 1,084,368 | 1,088,972 | 1,013,435 | 982,842 | 1,030,648 | 864,841 | 723,444 | 774,118 |

Note: Data include mines producing less than 10,000 short tons/year.

r/ Revised. p/ Preliminary. N/A Not available. Data may not add to totals due to rounding.

Source: U.S. Department of Energy/Energy Information Administration Updated: May 2018



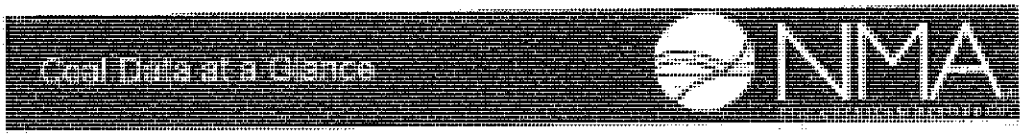


AMERICAN OVERSIGHT

EXT-18-2615-G-000289

## National Mining Association – Coal Data at a Glance 2001-2017

https://nma.org/wp-content/uploads/2017/11/data_at_a_glance_2017p.pdf




### U.S. Coal Production
### (Million Short Tons)

| Region | 2017 p/ | 2016 r/ | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| East [1] | 304.6 | 281.6 | 348.9 | 404.5 | 407.3 | 432.5 | 455.4 | 448.2 | 449.8 | 465.3 | 478.2 | 492.6 | 493.8 | 484.6 | 458.3 | 452.9 | 528.8 |
| West | 469.5 | 446.7 | 548.0 | 690.5 | 677.5 | 693.0 | 698.2 | 698.2 | 625.3 | 678.5 | 668.5 | 672.0 | 677.7 | 647.1 | 622.8 | 601.4 | 598.9 |
| Surface [1][2] | 526.2 | 476.3 | 690.1 | 849.3 | 843.2 | 874.1 | 900.0 | 745.4 | 742.6 | 814.7 | 794.9 | 803.7 | 783.6 | 744.5 | 717.7 | 705.8 | 747.1 |
| Underground [3] | 267.5 | 252.1 | 306.8 | 354.7 | 341.7 | 343.4 | 345.6 | 351.2 | 332.1 | 357.1 | 351.8 | 353.0 | 368.6 | 367.6 | 354.0 | 348.4 | 380.6 |
| Refuse Recovery | 0.8 | 0.9 | 1.4 | 1.8 | 2.8 | 3.1 | 3.7 | 1.9 | 3.7 | 1.4 | 1.2 | 0.9 | 0.7 | 1.0 | 1.0 | 1.0 | 1.8 |
| Total | 774.1 | 728.4 | 998.3 | 1,205.8 | 1,188.8 | 1,216.5 | 1,249.3 | 1,098.4 | 1,078.9 | 1,173.2 | 1,146.6 | 1,157.6 | 1,153.5 | 1,112.1 | 1,073.8 | 1,054.3 | 1,127.7 |

### Coal Consumption by Market [4]
### (Million Short Tons)

| Market | 2017 p/ | 2016 r/ | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Electric Power | 664.7 | 678.6 | 738.4 | 851.8 | 853.0 | 823.6 | 812.5 | 975.1 | 933.6 | 1,040.6 | 1,015.1 | 1,036.6 | 1,037.5 | 1,016.3 | 1,005.1 | 767.8 | 856.3 |
| Other Generation | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 209.7 | 158.1 |
| Other Industrial | 33.6 | 34.9 | 38.5 | 42.9 | 43.1 | 43.8 | 46.2 | 49.3 | 45.3 | 54.4 | 55.6 | 53.5 | 60.3 | 62.1 | 61.3 | 60.7 | 65.3 |
| Coke | 15.8 | 16.5 | 19.7 | 21.3 | 21.5 | 20.8 | 21.4 | 21.1 | 15.3 | 22.1 | 22.7 | 23.0 | 23.4 | 23.7 | 24.2 | 23.7 | 25.1 |
| Resid./Comm. | 1.0 | 1.2 | 1.5 | 1.9 | 2.8 | 2.1 | 2.8 | 3.1 | 3.1 | 3.5 | 3.5 | 3.2 | 4.7 | 5.1 | 4.2 | 4.4 | 4.4 |
| Total: | 715.1 | 731.1 | 798.1 | 917.7 | 924.6 | 890.2 | 1,002.9 | 1,048.6 | 997.4 | 1,120.6 | 1,127.9 | 1,112.3 | 1,125.9 | 1,107.3 | 1,094.8 | 1,066.3 | 1,060.2 |
| Exports | 87.0 | 82.3 | 74.0 | 97.3 | 117.7 | 125.7 | 107.3 | 81.7 | 55.1 | 81.5 | 53.2 | 49.6 | 43.9 | 43.0 | 43.0 | 38.8 | 48.7 |
| Imports | 7.8 | 9.3 | 11.3 | 11.4 | 8.9 | 9.2 | 13.1 | 15.4 | 22.6 | 34.2 | 34.3 | 36.2 | 30.5 | 27.3 | 28.0 | 16.5 | 19.8 |

### U.S. Coal Exports
### (Million Short Tons)

| Type | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bituminous: | | | | | | | | | | | | | | | | | |
| Steam | 41.4 | 18.9 | 21.6 | 35.4 | 51.2 | 55.3 | 37.2 | 25.0 | 22.5 | 30.5 | 25.4 | 21.7 | 20.3 | 20.5 | 20.8 | 18.1 | 22.8 |
| Metallurgical | 54.9 | 40.9 | 49.0 | 61.6 | 66.9 | 69.9 | 69.5 | 56.2 | 32.3 | 42.5 | 32.3 | 27.8 | 24.7 | 24.0 | 22.1 | 21.2 | 25.8 |
| Lignite | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.3 | 0.5 | 0.3 | 0.3 | 0.4 | 0.3 | 0.2 | 2.2 |
| Anthracite | 0.3 | 0.4 | 0.3 | 0.3 | 0.4 | 0.6 | 0.4 | 0.3 | 0.1 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.4 | 0.9 |

Note: p/ Preliminary. East region including all states east of the Mississippi River. West region includes Alaska and states west of the Mississippi River. Exports include overseas and Canada. Numbers may not add due to rounding.
NA = Not Available. e/ Preliminary or estimated. r/ Revised. 1/ December data is. 2/ Estimated by 2017 based on 2016 data.

Sources: Energy Information Administration and Mine Safety and Health Administration, International Coal Review.





AMERICAN OVERSIGHT

## *APPENDIX B: U.S. Coal Exports by State*

**U.S. Coal Exports by State (000s tons)**

| State | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| **East:** | | | | | | |
| Alabama | 10,640 | 10,658 | 11,091 | 12,049 | 8,555 | 6,329 |
| Illinois | 5,619 | 13,776 | 13,028 | 11,043 | 10,269 | 6,250 |
| Indiana | 120 | 472 | 42 | 85 | 20 | 172 |
| Kentucky | 7,984 | 8,839 | 12,416 | 4,449 | 3,437 | 1,351 |
| Eastern | 6,087 | 6,045 | 11,372 | 4,248 | 3,437 | 1,255 |
| Western | 1,898 | 2,793 | 1,044 | 202 | 0 | 97 |
| Maryland | 171 | 262 | 103 | 101 | 239 | 209 |
| Mississippi | 0 | 0 | 0 | 0 | 0 | 0 |
| Ohio | 0 | 0 | 0 | 0 | 0 | 137 |
| Pennsylvania | 15,379 | 14,443 | 12,234 | 8,156 | 7,633 | 6,008 |
| Bituminous | 14,992 | 13,856 | 11,472 | 7,844 | 7,297 | 5,607 |
| Anthracite | 387 | 587 | 762 | 312 | 336 | 401 |
| Tennessee | 0 | 0 | 0 | 0 | 0 | 0 |
| Virginia | 10,845 | 8,893 | 8,542 | 6,748 | 6,881 | 5,004 |
| West Virginia | 39,565 | 47,484 | 38,169 | 33,957 | 23,460 | 24,068 |
| **Total East** | **90,324** | **104,825** | **95,624** | **76,588** | **60,494** | **49,528** |
| **West:** | | | | | | |
| Alaska | 1,203 | 968 | 635 | 554 | 149 | 75 |
| Arizona | 0 | 0 | 0 | 0 | 0 | 0 |
| Arkansas | 0 | 0 | 37 | 9 | 0 | 0 |
| Colorado | 2,607 | 6,507 | 6,282 | 3,819 | 1,684 | 968 |
| Louisiana | 0 | 152 | 0 | 0 | 0 | 0 |
| Missouri | 0 | 0 | 0 | 0 | 0 | 0 |
| Montana | 9,025 | 9,085 | 12,121 | 12,409 | 10,339 | 6,871 |
| New Mexico | 0 | 0 | 0 | 0 | 0 | 0 |
| North Dakota | 0 | 0 | 0 | 0 | 0 | 0 |
| Oklahoma | 0 | 0 | 0 | 0 | 0 | 0 |
| Texas | 0 | 0 | 0 | 0 | 505 | 1,780 |
| Utah | 1095 | 1,080 | 1,453 | 2,869 | 735 | 1,049 |
| Washington | 0 | 0 | 0 | 0 | 0 | 0 |
| Wyoming | 3,005 | 3,129 | 1,508 | 1,010 | 52 | 0 |
| **Total West** | **16,935** | **20,920** | **22,035** | **20,669** | **13,464** | **10,743** |
| **Total US** | **107,258** | **125,745** | **117,659** | **97,257** | **73,958** | **60,271** |

Source: National Mining Association, US Department of Energy

Includes mine exports and exports by brokers and traders

Companies that export U.S. coal range from coal producers, brokers/traders and international commodity and trading firms. Some specialize in certain grades or coal producing regions while others represent overseas trading partners.



AMERICAN OVERSIGHT

EXT-18-2615-G-000291

Alphabetical listing of the top U.S. coal exporting firms in 2017 based on data from company reports, news reports and export data from TP Host.

| Company | Metallurgical | Thermal |
|---|---|---|
| Alliance Coal | | X |
| Arch Coal | X | X |
| Blackhawk Mining | X | |
| Bowie Resource Partners | | X |
| Cloud Peak Energy | | X |
| Consol Energy | X | X |
| Contura | X | |
| Drummond Company | X | |
| Global Mining (Signal Peak) | | X |
| Integrity Coal Sales (Trader) | X | |
| Javelin (Trader) | X | X |
| JERA Trading (Trader) | X | X |
| Lighthouse Resources | | X |
| Murray Energy | | X |
| Robindale Energy (Trader) | X | X |
| United Coal Company | X | |
| Vitol (Trader) | | X |
| Warrior Met Coal | X | |
| Xcoal Energy and Resources[1] (Trader) | X | X |



AMERICAN OVERSIGHT

# *APPENDIX C: Principal U.S. Coal Export Facilities*

| Facility Name | Owner | Port Name | Pier | Loading Rate | Throughput Capacity | Stockpile (tonnes) | Vessel Size | Restrictions | Primary User or Destination | Access |
|---|---|---|---|---|---|---|---|---|---|---|
| **US West Coast Ports** | | | | | | | | | | |
| Oxbow Terminal/Metro P | Koch Carbon | Port of Long Bea | G | Loader 1: 3500 tonnes/hr Loader 2: 5000 tonnes/hr | 1.8 Mt | 175,000 | Panamax | 40-50 ft | Coal & Petcoke | BNSF/UP |
| Metropolitan Bulk Termi | City of Stockton | Port of Stockton | 12-13 | Loader 1: 800 tonnes/hr Loader 2: 4000 tonnes/hr | 2.6 Mt | 100,000 | Panamax to 50,000 tonnes to 35 ft | 35 ft Berth A: 39 | Coal and other bulk commodities | UP |
| Levin-Richmond | Levin-Richmond Termina | Port of Richmon | 22-26 | 12000-15000 tonnes/day | 2.6 Mt | 80,000 | Panamax to 55,000 tonnes | ft, Berth B 30 ft | Coal and other bulk commodities | UP |
| Millennium Bulk Termina | Lighthouse Resources | Port of Longview | Docks 2-3 | tbd | Plan: Phase 1: 25 Mt; Phase II: 44 Mt | 1.5 mm | Panamax | 43 ft | Coal and other bulk commodities | BNSF/UP |
| Oakland Bulk and Oversized Terminal (proposed) | Oakland Global | Port of Oakland | 1 | tbd | 5 Mt | 180,000 | Cape | 50 ft | Coal and other bulk commodities | BNSF/UP |
| **Canadian and Mexican Ports Currently Handling US Coal** | | | | | | | | | | |
| Westshore Terminals | Westshore Terminals Investment Corp | Roberts Bank, BC | | 7000 tonnes/hr | 33 Mt | 2.0 mm | Cape | Berth 1: 20.9 M, Berth 2: 19.4 M | Coal & Petcoke | BNSF/CN/CP |
| Puerto de Guaymas | Administración Portuaria Integral de Guaymas | Guaymas, Sonora, MX | | 15000 tonnes/day | 2 Mt (est) | | Panamax | | Coal and other bulk commodities | Ferromex |
| **US EAST COAST – BALTIMORE (Atlantic Ocean via Chesapeake Bay)** | | | | | | | | | | |
| Consol Marine Terminal | Consol Energy | Port of Baltimore | CNX Pier | | 16 mm | 1.2 mm | Cape (small) | 47 ft | Coal | CSX, NS |
| Curtis Bay Coal Piers | CSX Railroad | Port of Baltimore | Bayside, Curtis (B&O) | | 14 mm | 500,000 | Cape (small) | 41 ft | Coal | CSX |
| **US EAST COAST – HAMPTON ROADS (Atlantic Ocean at mouth of Chesapeake Bay)** | | | | | | | | | | |
| Dominion Terminal Associates | Arch Coal 35%, Contura 65% | Port of Hampton Roads | DTA | | 22 mm | 1.7 mm | Cape (small) | 55 ft | Coal | CSX |
| Pier IX | Kinder Morgan | Port of Hampton Roads | Pier 9 | | 18 mm | 1.4 mm | Cape (small) | 50 ft | Coal | CSX |
| Lamberts Point Coal Terminal | Norfolk Southern Railroad | Port of Norfolk | Pier 6 | | 38 mm | na - inventory held in railcars | Cape (small) | 50 ft | Coal | NS |
| **US EAST COAST – Charleston (Atlantic via )** | | | | | | | | | | |
| Shipyard River Coal Terminal | Kinder Morgan | Port of Charleston | Shipyard Bulk | | 2.5 mm | 250,000 | Panamax | 45 ft | Bulk Commodities | CSX, NS |
| **US GULF COAST (Atlantic Ocean via the Gulf of Mexico)** | | | | | | | | | | |
| McDuffie Coal Terminal | Alabama State Docks | Port of Mobile | McDuffie Island | | 14 mm | 2.3 mm | Baby Cape | 45 ft | Coal and other Bulk Commodities | CN, BNSF, NS, CSX, KCS & barge |
| United Bulk Terminal | Marquard & Bahls | Mississippi Lower | Mile Post 55.3 (east) | | 12 mm | 4.0 mm | Baby Cape | 47 ft at S. Pass | Coal and other Bulk Commodities | Barge |
| International Marine Terminal | Kinder Morgan | Mississippi Lower | Mile Post 61.0 (west) | | 10 mm | 1.3 mm | Baby Cape | 47 ft at S. Pass | Coal | Barge |
| Convent Marine Terminal | SunCoke Energy | Mississippi Lower | Mile Post 160.8 (east) | | 15 mm | 1.5 mm | Baby Cape | 47 ft at S. Pass | Coal | CN (IC) & Barge |
| Impala Burnside | Trafigura (Impala subsidiary) | Mississippi Lower | Mile Post 169.9 (east) | | 7.5 mm | 600,000 | Baby Cape | 47 ft at S. Pass | Coal and other Bulk Commodities | CN (IC) proposed |
| Midstream Buoys | various | Mississippi Lower | Lower Mississippi | | approx 20 mm | na - inventory held in barges | Baby Cape | 47 ft at S. Pass | Coal and other Bulk Commodities | Barge |
| Deepwater Terminal | Kinder Morgan | Houston Ship Channel | Deepwater - shares w/ Petcoke | | 10 mm | 650,000 | Panamax | 40 ft | Petcoke and Coal | UP, BNSF, KCS |

**Source: Doyle Trading Consultants**



AMERICAN OVERSIGHT

EXT-18-2615-G-000293

| Category | Deadweight Tonnage Range (DWT) | Typical Length (meters) | Draft (feet) |
|---|---|---|---|
| Handysize | <40,000 | | up to 33 |
| Handymax | 40,000-50,000 | 150-200 | |
| Supramax | 50,000-60,000 | 150-200 | |
| Panamax | 60,000 - 80,000 | 294 max | 41.2 |
| New/Post Panamax | 120,000 | 366 max | 49.9 |
| Capesize | 150,000-400,000 | | 60 plus |
| Chinamax | up to 400,000 | 360 max | 79 |
| http://maritime-connector.com/wiki/ships/ | | | |



AMERICAN OVERSIGHT

## *APPENDIX D: Status of Proposed Coal Export Projects*

| Summary of Recent Proposed Coal Export Projects | | |
|---|---|---|
| **Project** | **Background/info** | **Status** |
| **Gateway Pacific Terminal** | Location: Cherry Point, Washington<br>Proposed: 2011<br>Overview: $700 million investment in new bulk terminal that would have exported up to 54 million tons per year (mostly coal but agricultural products as well).<br>Local economic impacts: Project estimated to create up to 4,400 direct and indirect jobs during the construction phase, and 1,250 jobs during operation, generating $140 million in local economic activity each year.[31] | Cancelled. In May 2016, the U.S. Army Corps of Engineers denied a water permit under section 404 of the Clean Water Act, citing potential impacts to treaty fishing rights.[32] Local authorities subsequently denied development and zoning permits.[33] In February 2017, GPT withdrew its permit applications, effectively cancelling the project.[34] |
| **Millennium Bulk Terminal** | Location: Longview, Washington<br>Proposed: 2012<br>Overview: $680 million investment would revitalize 70-year old industrial site to allow for up to 44 million tons per year of coal exports.<br>Local economic impacts: Project estimated to create up to 2,650 direct and indirect jobs during the construction phase, and 300 jobs during operation, generating $49 million in local economic activity each year.[35] | Active. In September 2016, the U.S. Army Corps of Engineers released a generally favorable draft environmental impact statement for the project,[36] but in April 2017, the Washington State Dept. of Ecology issued a separate EIS under the State Environmental Policy Act (SEPA) concluding that the project would result in "unavoidable and significant adverse impacts" in a number of different areas.[37] In September 2017, the Ecology Department denied a key water quality permit under section 401 of the Clean Water Act.[38] Project developer Lighthouse Resources then sued the state of Washington in federal court, citing a number of process objections and arguing that permit denials violated the Interstate Commerce Clause. Six states (MT, WY, SD, UT, KS and NE) have filed a brief in support of the suit, which is awaiting argument. |
| **Morrow Pacific Project** | Location: Boardman, Oregon (Port of Morrow)<br>Proposed: 2012 | Canceled. While the Oregon state DEQ issued air quality, water quality, and |

[31] http://createnwjobs.com/education/proposed-projects/
[32] http://www.nws.usace.army.mil/Media/News-Releases/Article/754951/army-corps-halts-gateway-pacific-terminal-permitting-process/
[33] http://www.whatcomcounty.us/DocumentCenter/View/23248/Letter-to-Pacific-International-Holdings-October-252016
[34] https://www.whatcomcounty.us/993/Gateway-Pacific-Terminal-Proposed-Projec
[35] http://createnwjobs.com/education/proposed-projects/
[36] http://www.millenniumbulkeiswa.gov/nepa-draft-eis.html
[37] https://fortress.wa.gov/ecy/publications/documents/1706013.pdf
[38] http://www.millenniumbulk.com/wp-content/uploads/2017/10/401-WQ-Certification-Denial-Letter.pdf



AMERICAN OVERSIGHT

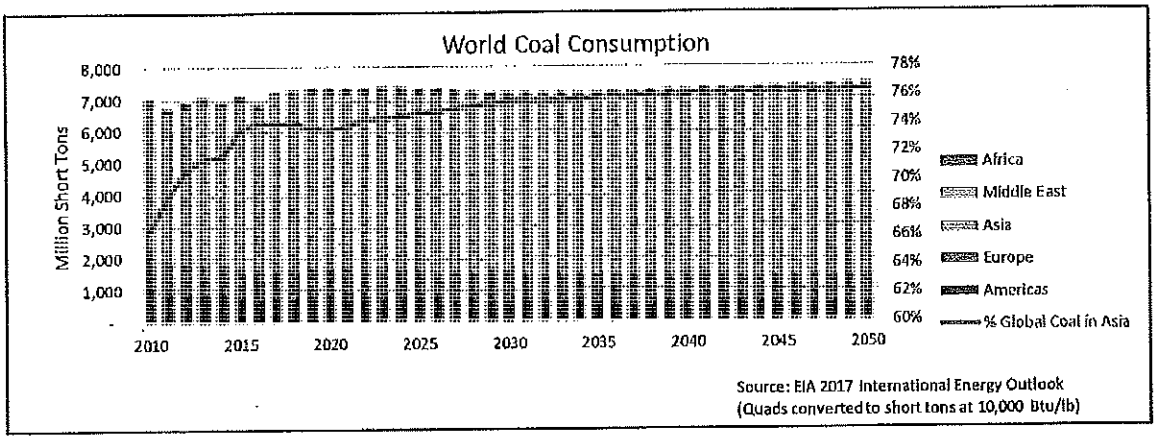
| | | |
|---|---|---|
| | Overview: $200 million investment to in facility to barge up to 8.5 million tons per year of coal along Columbia River to Port Westward for export.<br>Local economic impacts: According to project supporters, development of the facility would have created 2,100 direct and indirect jobs during the construction phase, and 1,000 permanent jobs during full operation. | construction stormwater permits for the project,[39] In August 2014, the Oregon Department of State Lands (ODSL) denied a removal-fill permit for the project, citing potential concerns related to waterways and fishing.[40] An administrative law judge later upheld the decision, and in October 2016, Lighthouse Resources withdrew its application for the project, noting that it would instead route exports through Vancouver, British Columbia.[41] |
| **Oakland Bulk & Oversized Terminal** | Location: Oakland, California<br>Proposed: 2012<br>Overview: In 2012, the city of Oakland entered into an agreement with the Oakland Bulk & Oversized Terminal (OBOT) to develop a shipping terminal on land near a former Army base. Among other bulk goods, the developers planned for the facility to export roughly 5 million tons of coal per year sourced from mines in Utah.<br>Local economic impacts: The OBOT is projected to create up to 12,000 jobs, generating $300 million annually in direct and indirect local employment income.[42] | Active. In 2016, the City of Oakland passed an ordinance prohibiting the storage and handling of coal at the facility, citing concerns with particulate emissions from coal dust. OBOT sued to block the ordinance, and in May 2018, the U.S. District Court for the Northern District of California overturned the ordinance.[43] The City appealed the decision to the Circuit Court.[44] |

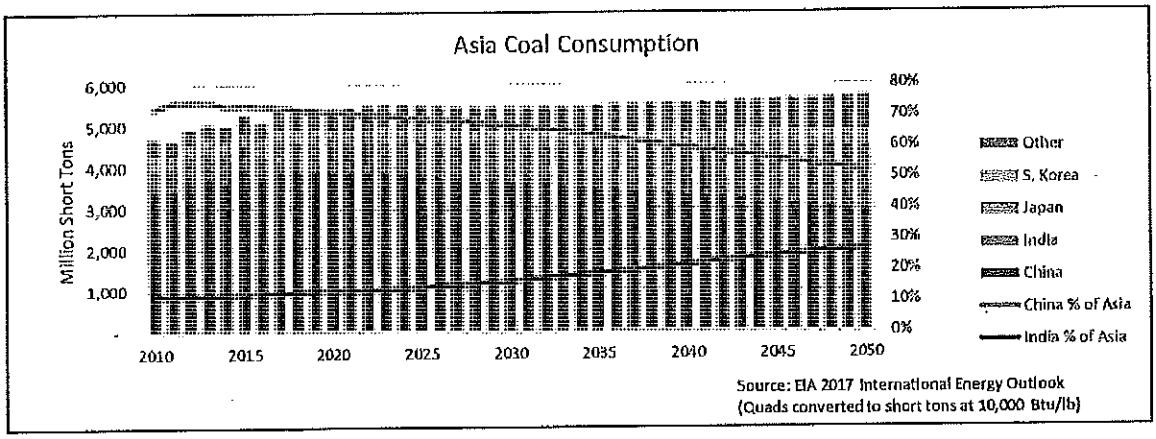
[39] https://www.oregon.gov/deq/Programs/Pages/Coyote-Island-Coal-Project.aspx
[40] http://op.bna.com.s3.amazonaws.com/env.nsf/r%3FOpen%3dsbra-9n5t2g
[41] http://www.lighthouseresourcesinc.com/lighthouse-resources-sending-coal-to-asia/
[42] http://www2.oaklandnet.com/oakca1/groups/ceda/documents/agenda/oak039156.pdf
[43] http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20180515_docket-316-cv-07014_decision.pdf
[44] https://www.eastbayexpress.com/SevenDays/archives/2018/06/14/city-of-oakland-appeals-decision-striking-down-coal-ban



AMERICAN OVERSIGHT

## *APPENDIX E: Global Coal Market Statistics*




### World Coal Trade (million tonnes)

| | Japan | | Other Asia | | OECD Europe | | Oth. Eur. + Eurasia | | Africa + Mid. East | | North America | | Latin America | | Balancing Item | | World | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Exporters | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 |
| Australia | 125.1 | 120.7 | 225.3 | 229.4 | 22.2 | 21.6 | 1.1 | 0.5 | 1.1 | 1.3 | 3.8 | 3.5 | 9.8 | 10.7 | 4.1 | 1.7 | 392.3 | 389.3 |
| Canada | 8.7 | 8.2 | 14.2 | 15.1 | 3.9 | 4.2 | 1.3 | 1.0 | 0.2 | 0.2 | 1.2 | 1.0 | 1.5 | 1.6 | -0.4 | -0.9 | 30.5 | 30.3 |
| Poland | - | - | - | - | 9.3 | 8.4 | 0.4 | 0.6 | 0.4 | 0.9 | - | - | - | - | -0.6 | -0.6 | 9.4 | 9.3 |
| United States | 4.3 | 5.6 | 11.7 | 10.1 | 36.0 | 29.5 | 4.3 | 3.3 | 0.7 | 1.1 | 9.2 | 7.6 | 7.3 | 6.9 | -6.3 | -9.6 | 67.1 | 64.7 |
| Other OECD | 0.1 | 0.1 | 1.6 | 2.0 | 13.1 | 15.1 | 0.5 | 0.5 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 32.0 | 31.8 | 47.7 | 49.6 |
| Total OECD | 138.1 | 134.7 | 253.0 | 256.6 | 84.5 | 78.7 | 7.6 | 5.9 | 2.5 | 3.6 | 14.2 | 12.1 | 18.5 | 19.2 | 28.7 | 22.5 | 547.1 | 533.2 |
| PR of China | 1.6 | 2.6 | 4.9 | 6.2 | 0.1 | 0.1 | 0.0 | - | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -1.5 | -0.3 | 5.2 | 8.6 |
| Colombia | 0.0 | 0.9 | 5.9 | 10.1 | 63.0 | 58.7 | 0.3 | 0.3 | 5.8 | 4.9 | 10.2 | 10.5 | 13.9 | 14.6 | -21.4 | -16.6 | 77.8 | 83.3 |
| Indonesia | 32.0 | 31.0 | 326.3 | 336.4 | 7.9 | 6.5 | 0.0 | 0.1 | 0.2 | 0.3 | 0.6 | 0.6 | 0.0 | - | -0.5 | -4.7 | 366.7 | 369.9 |
| Kazakhstan | 0.2 | 0.0 | 0.0 | 0.0 | 1.0 | 1.3 | 25.0 | 21.2 | - | - | - | - | - | 0.1 | 5.1 | 3.0 | 31.2 | 25.7 |
| Russian Fed. | 17.0 | 17.9 | 57.1 | 57.7 | 71.0 | 53.6 | 11.5 | 12.7 | 3.8 | 5.7 | 0.1 | 0.3 | 1.8 | 2.0 | -7.2 | 1.1 | 155.2 | 171.1 |
| South Africa | 0.2 | 0.1 | 44.5 | 51.1 | 21.6 | 21.6 | 1.2 | 0.5 | 10.6 | 12.1 | 0.1 | 0.0 | 1.2 | 1.1 | -3.7 | -10.0 | 75.5 | 76.5 |
| Oth. non-OECD | 0.5 | 1.4 | 44.4 | 53.8 | 15.6 | 10.6 | 3.7 | 0.4 | 3.5 | 0.8 | 0.2 | 0.1 | 1.9 | 0.7 | -21.4 | -12.3 | 49.4 | 65.2 |
| Tot. Imp./Exp. | 189.6 | 189.4 | 731.4 | 779.6 | 265.9 | 239.0 | 47.3 | 39.5 | 25.7 | 28.3 | 25.5 | 23.5 | 36.6 | 37.3 | -13.3 | -1.1 | 1308.1 | 1333.5 |

Source: IEA Coal Information 2017 Table 3.1



AMERICAN OVERSIGHT
EXT-18-2615-G-000297

## Chinese Coal Imports by Country of Origin
## (thousand tonnes)

| | 1978[1] | 1990 | 2000 | 2005 | 2010 | 2013 | 2014 | 2015 | 2016p |
|---|---|---|---|---|---|---|---|---|---|
| Total coal[3] | 2440 | 2003 | 2119 | 26173 | 163065 | 327182 | 291586 | 204132 | 255604 |
| Coking coal | - | 900 | 547 | 7195 | 47082 | 75421 | 62440 | 47939 | 59307 |
| Australia | - | 600 | 547 | 4422 | 24162 | 30177 | 31279 | 26704 | 28819 |
| Canada | - | 300 | - | 1239 | 4018 | 11087 | 7204 | 5711 | 5189 |
| Czech Republic | - | - | - | - | - | - | - | - | - |
| Germany | - | - | - | - | - | - | - | - | - |
| Poland | - | - | - | - | - | - | - | - | - |
| United Kingdom | - | - | - | - | - | - | - | - | - |
| United States | - | - | - | - | 2754 | 6085 | 2090 | 115 | - |
| Other OECD | - | - | - | 179 | 138 | 582 | 500 | 277 | 593 |
| China, People's Rep. | - | - | - | - | - | - | - | - | - |
| Colombia | - | - | - | - | 23 | 175 | 105 | - | - |
| Indonesia | - | - | - | - | 707 | 2673 | 667 | 231 | 574 |
| South Africa | - | - | - | - | - | - | - | - | - |
| Former Soviet Union[4] | - | - | x | x | x | x | x | x | x |
| *Russian Federation* | *x* | *x* | - | *61* | *1804* | *8442* | *5760* | *3228* | *2620* |
| *Other FSU* | x | x | - | - | - | *237* | *38* | - | *10* |
| Venezuela | - | - | - | - | 38 | - | - | - | - |
| Viet Nam | - | - | - | - | - | - | - | - | - |
| Non-specified/other | - | - | - | 1294 | 13387 | 16003 | 14807 | 12733 | 23562 |
| Steam coal[5] | 2440 | 1103 | 1572 | 18978 | 115983 | 251761 | 229146 | 156133 | 196297 |
| Australia | - | - | 1034 | 2307 | 15169 | 58032 | 63227 | 45208 | 49723 |
| Canada | - | - | - | - | 710 | 888 | 904 | - | - |
| Czech Republic | - | - | - | - | - | - | - | - | - |
| Germany | - | - | - | - | - | - | - | - | - |
| Poland | - | - | - | - | - | - | - | - | - |
| United Kingdom | - | - | - | - | - | - | - | - | - |
| United States | - | - | - | 12 | 1132 | 2769 | 1806 | - | - |
| Other OECD | - | - | - | 798 | 26 | 1 | 150 | - | 4 |
| China, People's Rep. | - | - | - | - | - | - | - | - | - |
| Colombia | - | - | - | - | 3758 | 328 | 1 | - | - |
| Indonesia | - | - | 141 | 2280 | 58295 | 123110 | 105898 | 73531 | 103226 |
| South Africa | - | - | 326 | - | 4183 | 12740 | 5750 | - | - |
| Former Soviet Union[4] | - | - | x | x | x | x | x | x | x |
| *Russian Federation* | *x* | *x* | *72* | *791* | *6801* | *18812* | *19632* | *12589* | *16227* |
| *Other FSU* | *x* | *x* | - | - | *1* | *933* | *15* | *10* | *10* |
| Venezuela | - | - | - | - | - | - | - | - | - |
| Viet Nam | - | - | - | 11460 | 18065 | 13146 | 6831 | 719 | 487 |
| Non-specified/other | 2440 | 1103 | - | 1343 | 9856 | 21602 | 26143 | 24006 | 32820 |
| Lignite | - | - | - | - | - | - | - | - | - |

Source: IEA Coal Information 2017



AMERICAN OVERSIGHT

EXT-18-2615-G-000298

## *APPENDIX F: Principal Global Suppliers of Metallurgical Coal – Country Breakdown*[civ]

### *Australia*

Australia is one of the world's largest metallurgical coal producers and the world's largest metallurgical coal exporter. Australian metallurgical coal exports circle the globe and provide competition to all suppliers everywhere. Its highly-desired low-volatile coals set the industry standard.

Australia has a large remaining marketable reserve of metallurgical coal in Queensland and New South Wales. Reserves exist in the Bowen Basin in Queensland, and in the Sydney and Gunnedah basins of New South Wales. Much of the marketable reserve is located at currently operating mines. Nearly all this coal reserve is earmarked for the export market. A good portion of the Australian reserve is hard coking coal with the remainder split between soft coking coal and pulverized injection coal (PCI).

With only occasional and modest market driven setbacks, Australian metallurgical coal production has been steadily climbing for many years on the back of rising Asian demand for coke and steel. Recent annual metallurgical production has approached 200 million tonnes and additional increases are expected in the future. Hard coking coal production exceeds 100 million tonnes per year, with the remainder of production split between soft coking coal and PCI coal. Most of the production is from surface mines.

Australian metallurgical coal is valued for its high quality. When building metallurgical coal blends, consumers appreciate the diversity of coal types in Australia and the stability of supply offered by Australian producers. Australian low volatility hard coking coal is considered the industry benchmark. Prime Australian coking coals typically make strong coke as evidenced by their high CSR values. However, the best high-volatility Australian coking coals lack the high fluidity of their U.S. competitors and therefore do not flow as well and are not as prized in blends as their U.S. counterparts.

For some consumers, Australian coal is distant from their operations and the long haulage adds significantly to its delivered cost. Furthermore, Australian mines are often subject to the impacts of tropical cyclones that can last for days to weeks. Customers must remain flexible to accommodate these potential and unpredictable interruptions, either by contracting for non-Australian supply or by carrying extra inventory during the wet season. Customers of Australian metallurgical coal are also wary of the increased supplier pricing power arising from dominance by a few large producers.

Coal exports from Australia utilize nine terminals at seven ports, and by rail systems servicing these ports.

Australian mining companies are subject to a range of taxes that vary by location. Taxes and other fees in Queensland and New South Wales include royalties, a federal corporate income tax, a research contribution tax, service leave and mine safety taxes, and a voluntary "Coal21" greenhouse gas abatement contribution.



AMERICAN OVERSIGHT

**United States**

The U.S. is a significant global producer of metallurgical coal and usually the second or third largest exporter. At today's prices, its marketable reserve is substantial, in the neighborhood of one billion tons. Most of this reserve exists in Central Appalachia (CAPP), with the remainder split between Northern and Southern Appalachia (NAPP and SAPP). States with large reserves include West Virginia, Alabama, Virginia, Pennsylvania and Kentucky. Most of the U.S. metallurgical coal reserve is hard coking coal. There is a small amount of PCI coal. Almost all the reserve must be accessed using underground mining methods.

U.S. metallurgical coal production has been variable over the years. In 2015, metallurgical coal production totaled about 60 million tons, but was lower in 2016 given weak market fundamentals and higher in 2017 as the global market improved.

High-volatility A and B coking coals dominate production, but some low-volatility and mid-volatility coal is also produced. When market conditions and ocean freight rates allow, substantial amounts of high-volatility C metallurgical coal are exported from NAPP.

In NAPP, there are two broad categories of coking coal: low- and mid-volatile coals in the eastern side of the basin; and high-volatility coals in southwestern Pennsylvania. The high-volatility coking coals in Pittsburgh seam mines have sulfur contents greater than coking plants desire, so much of this coal is consumed in thermal markets.

Most NAPP metallurgical and thermal export coal is exported through Baltimore, Maryland, via the CNX Marine Terminal or the Chesapeake Bay Piers. Baltimore's CNX Marine Terminal is owned by CONSOL Energy and served by both CSX and Norfolk Southern (NS). CNX Marine is the largest export coal terminal serving NAPP and can load small capesize vessels. CSX's Chesapeake Bay Piers is a smaller terminal in Baltimore that also handles domestic coast-wise business.

CSX and NS are the Class 1 railroads serving NAPP mines along with a few small short lines. The MGA Railroad (jointly operated by the CSX and NS railroads) serves some large Pittsburgh seam mines.

SAPP production is primarily low-volatile and mid-volatile coals. Steel makers like the low sulfur, low ash, low moisture, and high CSR Blue Creek seam coal for making coke. SAPP metallurgical coal is considered to be one of the highest quality coals in the world. Coking coals from SAPP generally have a lower ash and sulfur content than competing Northern and CAPP coals.

Consumers of U.S. coal appreciate the high fluidity of the high-volatility. A U.S. coals given their ability to improve flowing in the blend and make a larger coke. Some U.S. metallurgical coals are considered to have quality equal to the best of the premium Australian coals thereby providing a good supply diversity option for consumers.

Most CAPP export coal (both metallurgical and thermal) is exported through one of three coal terminals at Hampton Roads, Virginia. DTA (Dominion Terminal Association) and Pier IX are served by CSX, and Lamberts Point is served by NS. New Orleans also remains an important center for coal exports from these eastern regions given its location at the mouth of the Mississippi River which many coal mines can access via inexpensive river transport.



AMERICAN OVERSIGHT

Lamberts Point Coal Terminal is the largest capacity coal port in North America. The terminal is owned, operated and served by the NS railroad. Virtually all export coal produced by NS-served mines in Central Appalachia is moved through Lamberts Point. Nearly all the coal exported from Lamberts Point is metallurgical coal.

The CSX-served DTA terminal is the larger of the two terminals in Hampton Roads. Most of the coal shipped from DTA is metallurgical grade. Pier IX terminal is the other CSX-served export terminal at Hampton Roads and it exports both thermal and metallurgical coal depending on then-current market conditions.

U.S. suppliers have a transportation advantage to most European locations. Also, FOB mine costs for the high sulfur high-volatility C coals are very competitive which improve the economics somewhat into far-distant markets in Asia.

In the U.S., taxes and fees imposed on export coals at the federal level include corporate income taxes, reclamation taxes, and corporate income taxes. State governments typically impose income and severance taxes and guide counties on the imposition of property taxes except in West Virginia where property taxes are assessed at the state level. Royalties and taxes vary by state and sometimes by mining method.

*Russia*

Russia is a major global producer of metallurgical coal. Even though it consumes most of its domestic production, Russia remains one of the top five metallurgical coal exporters in the world.

Russian remaining marketable metallurgical coal reserves are quite large, larger than those in the U.S. The reserve base exists primarily at operating mines with about half at mines serving domestic customers and half serving the export market. The reserve spans all qualities of metallurgical coal, from hard to semi-soft to soft coking coals. Russia also has a significant amount of high quality PCI coal.

Russia's metallurgical coal reserves are accessed by both underground and surface mining methods. Most of the reserves exist in the Kuzbass region of central Russia. Production is spread among many companies, but two-thirds of production is controlled by the five largest producers.

Unlike most other coal producing and exporting countries, Russia was not significantly affected by the recent multi-year production rationalization process. Despite weaker international and domestic coal demand and continued ruble cost inflation during the rationalization period, most major Russian coal producers have kept production and exports stable.

There is a limited amount of hard coking coal in Russia. Its coal often contains impurities and delivery is sometimes inconsistent.

Ocean freights from eastern Russian terminals to metallurgical coal customers in northeast Asia are very low providing them with a significant transportation advantage compared to most suppliers, although the rail cost to their ports is very high. Consumers of Russian coal like that Russian coal allows them to diversify from Australian metallurgical coal. Russian PCI coal directed into the European Union has almost complete dominance due to its low sulfur and high energy content. Note that the low CSR levels of Russian coal (compared to many other sources) can make it less desirable.



AMERICAN OVERSIGHT

The location of Russian mines in the center of the country creates extremely long haulage distances to eastern and western terminals or to most western landborne customers. Weather can be a problem, as can railroad maintenance, both of which can and do interrupt supply periodically.

Coal export infrastructure is remote with high capital and operating costs that impact availability. Some ports are impacted by ice and shallow water depths. Coal is exported from ports in Russia's Northwest, Baltic Sea, Black Sea and the Far East. In the aggregate, loading capacity is nearly double actual exports. However, Far East ports are currently operating at or near total capacity and port expansion plans are numerous.

Government-owned Russian Railways operates the rail system but rail car operation services are privately controlled.

Russia's legal framework is evolving as its economy trends to becoming less government controlled. Foreign investment inside Russia is challenging and limited. Mining companies pay an assortment of taxes including a corporate profits tax, a value added tax, a mineral extraction tax, and property and land taxes.

*Canada*

Marketable metallurgical coal reserves in Canada are similar in size to those in the U.S. Most of this reserve is located in British Columbia with nearly all the remainder found in Alberta. There is a very small metallurgical coal reserve in Nova Scotia.

There are multiple possible projects in Western Canada which could add significantly to Canadian reserves and could potentially replace existing mines if market conditions allow.

Since 2010, Canadian metallurgical coal production has ranged from 25 to 35 million tonnes per year and is currently increasing. Depending on the year, between three and five companies contribute to metallurgical coal production. Production has been highly concentrated with one producer responsible for most of the production. The new Donkin underground mine in Nova Scotia owned by Kameron Collieries is looking to expand metallurgical coal production.

Most of Canada's production is thermal coal. While most of Canada's coal exports are metallurgical coal, the Donkin mine could also export significant volumes of thermal coal. Of total metallurgical coal production in Canada only one to two million tonnes is consumed domestically.

Canada has some of the highest quality metallurgical coal in the world. Its low- and mid-volatility metallurgical coals are in high demand with steel producers around the world, particularly in Asia. Volatile matter in the western Canadian metallurgical coal mines is usually low. Most of it is blended with high-volatile coal by customers. Most Canadian coal also has low fluidity requiring other high-volatile coals to be introduced into the blend to make proper coke. Canada can also produce some high quality PCI coal.

Western Canadian port capacity has been expanded to over 60 million tonnes per year. Primary Canadian terminals include Westshore, Neptune and Ridley Island terminals. In addition to Canadian metallurgical coal, a few million tonnes of U.S. western thermal coal is shipped through Westshore. The Nova Scotian coal is exported through the Provincial Energy Ventures terminal near Sydney, Nova Scotia.



AMERICAN OVERSIGHT

Two railroads control the movement of most Canadian coal: Canadian Pacific (CP) railway and Canadian National (CN) railway. CP controls most of the export coal, and eastbound shipments to the U.S. and to Thunder Bay Terminal on Lake Superior. CN serves mines in central Alberta and north-eastern BC. If new mines are developed in northern British Columbia, the CN is well-positioned to transport their coal to Ridley Terminal for export. Ample rail capacity exists for the foreseeable future.

The coal mining industry in Canada is subject to federal, provincial and local regulation and legislation. Mining operations are regulated primarily by provincial legislation, but also by federal legislation and local by-laws.

All new projects must prepare environmental impact assessments. Jurisdiction over mining is provided by the province with particular attention paid to heritage and cultural resources, site remediation and reclamation.

Provinces assess lease fees, income taxes and royalties, and the federal government assesses a federal net profits tax. Furthermore, British Columbia has a substantial carbon tax that applies when fuel is purchased for any reason; however, coal sold and exported outside British Columbia is exempt.

**Mozambique**

Mozambique is emerging as a producer and exporter of metallurgical coal. Thermal coal exports are, essentially, a byproduct of metallurgical coal production. Higher production and export of coal in Mozambique depends on investment in the coal value chain, higher coal prices and guarantees of improved internal country security. All of Mozambique's marketable reserves are located in the Tete Province, mostly in the Moatize coal basin. Although there are reports of a total reserve of 20 billion tonnes of coal, actual marketable reserves are probably much smaller, perhaps comparable to those in the U.S., at most.

Mozambique coal production began in 2011 and is increasing as infrastructure is improved, mostly at Vale's Moatize mine. While there is no internal consumption of coal in Mozambique, efforts are underway to develop a coal-fired station, called the Benga Independent Power Project. A recent joint venture agreement between Kibo Mining and a Mozambique energy company Termoelectrica de Benga S.A. was formed for this purpose.

Mozambique has high quality hard coking coal. CSR levels are high. Some Mozambique hard coking coal is on par with the premiere Australian coking coals. However, ash and phosphorous levels are high so the coal must be blended in order to make high quality coke.

Coal is exported using two rail and port systems – Beira and Nacala. The completion of the Nacala Logistics Corridor which includes a 912-kilometer rail line and a new export coal terminal in Nacala in 2017 has significantly improved the logistics of moving coal to the export market with a large reduction in cost. Acknowledgement of Mozambique's potential was the purchase by Mitsui of a portion of the Moatize mine and the Nacala Logistics Corridor.

Multiple new projects are planned in Mozambique. The economic viability of these projects is in question. Mineral resources in Mozambique are owned by the state and governed by a federal mining law. Foreign companies are allowed to apply for an exploration license but to mine coal, companies must be registered in Mozambique and the government must provide its consent to mine. Mining companies are subject to the usual royalties and corporate income taxes.



AMERICAN OVERSIGHT

## *APPENDIX G: Principal Global Suppliers of Thermal Coal – Country Breakdown*[cv]

**Indonesia**

Indonesia has an extremely large, marketable coal reserve of billions of tonnes, nearly all of which is thermal coal. The majority of this reserve is located in Kalimantan, with most of the rest located in Sumatra. More than one-half of this reserve is classified as low-rank coal. However, since much of the reserve is located in South Sumatra and East Kalimantan, a substantial amount of infrastructure development will be required in order to mine and market the coal.

Indonesian thermal coal production exceeded 400 million tonnes in 2015 but has fallen since. Accurate production statistics are difficult to obtain since some Indonesian coal production is "illegal", a problem the government is making good progress in rectifying. Most production has been in Kalimantan. All production is by surface methods in mines whose costs are typically very low. Most of the coal is exported. The government reserves a certain amount (the domestic market obligation, or DMO) for domestic use and the rest is exported. The DMO was about 80 million tonnes in 2015.

Indonesia produces three types of thermal coal: bituminous coal (>5,400 kcal/kg on a gross as received (gar) basis), sub-bituminous coal (>4,600 to 5,400 kcal/kg gar), and low rank or lignite coal (less than 4,600 kcal/kg gar). Three-quarters of coal production is low rank (lignite and sub-bituminous) coal. Of the low rank coal, about one-third is lignite coal. U.S. PRB coals are on a quality par with the best Indonesian coal.

In Indonesia, producers usually manage their own logistics. Exported coal moves from mine to ocean vessel mainly by barge to low capital and operating cost trans-shipment facilities where current capacity is more than sufficient. There are some possible future projects in Indonesia that are essentially "stranded" by the lack of infrastructure available to deliver their coal to market.

***Australia***

Australian thermal coal marketable reserves are in the billions, much greater than those in the U.S. The reserve is split roughly equally between New South Wales and Queensland. Important coal basins include the Sydney, Bowen, Surat, Galilee and Gunnedah Basins.

Recent thermal coal production totals about 250 million tonnes per year, roughly 80% of which is exported. Thermal coal production is primarily concentrated in the Sydney Basin in New South Wales and the Bowen Basin in Queensland. Over 50 companies produce thermal coal in roughly 75 mines, but the top eight companies control 75% of total thermal coal production. The largest miner produces nearly three times the thermal coal of its nearest competitor.

Australian thermal coal exports total about 200 million tonnes per year. Japan is the largest consumer of Australian thermal coal, consuming twice as much as the next largest consumer, China. South Korea, and Taiwan are also large consumers.



AMERICAN OVERSIGHT

*Russia*

Marketable reserves of thermal coal in Russia are similar to those in Australia in size. Half of this reserve is located in the Kuzbass region in Kemerovo. High rank coals form the majority of the marketable reserves. Low-rank lignite accounts for about one-quarter of the reserve, mostly in Krasnoyarsk and Irkutsk. Most of the Russian coal reserves are far from major international markets and require an inland transport to exporting port of as much as 4,000 – 6,000 km.

Russian thermal coal production exceeds 250 million tonnes per year thereby making up the majority of total Russian coal production. Bituminous coal accounts for 70% of thermal coal production, with lignite accounting for most of the rest.

Recently, exports have strengthened, now totaling about 120 million tonnes. Most exports to Asia are by seaborne methods. To the west into Europe, exports are by both landborne and seaborne methods.

Russia's thermal coals are good quality bituminous coals. They are characterized by low sulfur content typically usually below 0.6% and often below 0.4% making them attractive to European buyers, in particular. Ash content of Russian bituminous thermal coal is average but energy content almost always exceeds 6,000 kcal/kg, except for high ash coals. High-ash coals can have an ash content well above 20% with an energy content of about 5,500 Kcal/kg nar.

Most Russian coal producers' costs are denominated in Russian currency. The ruble exchange rate is still the main driver in cost trends, with cost inflation in ruble-denominated categories of prime importance. Recent changes in the ruble exchange rate have lifted Russian mining costs. FOB port costs are similar to those in Australia, but inland rail transport can reach one-half of the total FOBT cost. Russian port costs are high, being impacted by the ruble exchange rate.

*Colombia*

Colombia's total marketable reserves are greater than those in the U.S. but smaller than those in Russia and Australia. Most of the reserves are located in the departments of La Guajira and Cesar.

Production has continued to expand, reaching over 89 million tonnes in 2017 with expectations of exceeding 100 million tonnes per year early in the next decade. The vast majority of production is from surface mines, most of them large and very efficient, and the vast majority of production is exported. FOB mine costs are among the lowest in the Atlantic Basin, making Colombia a preferred source of thermal coal in the Atlantic markets.

New projects will require a build-out of rail and port capacity. Projects outside of La Guajira and Cesar are located in interior Colombian states and, for the coal to be exported, will require new rail lines at very high capital cost.

Most Colombian thermal coals are high volatile bituminous coals with medium to high calorific value, low sulfur and ash levels, and generally good thermal combustion characteristics. Quality has declined over time as the large mines expanded production into somewhat poorer quality coals. The primary market for Colombian coal has been the Atlantic market. With the decline in U.S. imports, Europe remains the primary source of demand followed by Mexico and Central and South America. With the opening of the third channel at the Panama Canal, exports to Asia are believed to be a promising growth market.



AMERICAN OVERSIGHT

Nominal rail and port capacity are sufficient to accommodate existing production but increased production will require expansion of both rail and ports. By regulation, all exports are direct-loaded into vessels. The major producers have invested in ports to provide direct ship loading and eliminate barge-to-ship transfers. Currently, any coal produced in the Colombian interior can only be transported by truck. Ongoing expansion efforts have been delayed for a variety of reasons.

*South Africa*

South Africa's large thermal coal reserves are similar in size to those in Australia. Mpumalanga Province contains the majority of marketable coal within South Africa. Reserves are greatest in the Waterburg and Witbank coalfields, but the Witbank, Highveld and Ermelo coalfields are the key current coal producing areas

Thermal coal production has surpassed 250 million tonnes. The majority of this coal is consumed in the domestic market. Currently, about 75 million tonnes per year. Export coal is sourced primarily from the Witbank field.

Although port capacity is far greater, exports of South African thermal coal have hovered around 75 million tons per year for a few years, hindered by rail-to-port delivery problems. Most recently, exports are split between standard and high-ash bituminous coals. India is by far the largest destination market. Other markets include Europe, Northeast Asia and Turkey. Pakistan and Egypt represent markets of opportunity for South African thermal coal.

South African thermal coal for export ranges greatly in quality from under 5,000 kcal/kg nar to over 7,000 kcal/kg nar. Typically, coal is processed to meet a standard seaborne market specification for bituminous coals. However, coal qualities have been falling but with increased yields, margins are being maintained, nonetheless. A high-ash product for the Indian and Chinese market is also produced at a quality similar to that of the Australian high-ash coals. The growth in this high-ash market has been swift and its volume already significantly exceeds that of the standard 6,000 kcal/kg specification market. Eventually, high quality South African coal reserves will be exhausted.

In local currency terms, mining costs have increased substantially since 2013. But in U.S. dollar terms, the cost has actually declined due to exchange rate changes, although this last year, costs increased.

South African coal exports are serviced by four terminals at three ports, and by three main rail systems. Total port capacity is over 100 million tonnes and total rail capacity is about 90 million tonnes. Exports have failed to perform partly due to constraints on the rail system which state-owned Transnet hopes to solve through additional capital spend on rolling stock and upgrades to the existing Richards Bay coal line. A guarantee is in place to lift capacity on the important Richards Bay line up to 81 million tonnes per year of capacity.

The South African government owns all mineral rights. Historically disadvantaged South Africans are given preference regarding the opportunity to invest in the mining industry. Minimum black ownership levels are mandated.

South African miners are subject to taxes including royalties and corporate income taxes.



AMERICAN OVERSIGHT

*United States*

**Northern Appalachia (NAPP).** At today's prices, marketable thermal coal reserves are in the low single digit billions of tons range, although additional underground reserves are present that could support new mines if sustained market conditions warrant. Thermal coal production in NAPP totals around 90 million tonnes per year, of which 0 to 8 million tonnes per year is annually exported, usually to Europe, the Mediterranean and Latin America. Exports of NAPP coal have increased significantly over the last four years. When petroleum coke prices are high, some NAPP coal is often exported to India as a low-cost replacement fuel in cement plants.

Thermal coal produced in NAPP is high in energy content and generally high in sulfur. The average quality for NAPP thermal coal is high, over 12,500 Btu/lb, with ash under 10%, but sulfur in the range of 3%. Most of the thermal production occurs in large Pittsburgh Seam longwall operations. The sulfur content of future production will rise as mine operations move westward in NAPP.

Low natural gas prices in the Marcellus region are threatening NAPP coal producers. This pressure has driven thermal coal mines to reduce costs over the last several years although higher wages and higher diesel costs have lifted costs in the last two years.

**Central Appalachia (CAPP).** Marketable thermal coal reserves in CAPP are small and occur mostly in West Virginia. Current thermal coal production totals about 30 million tonnes per year, but CAPP is under pressure from low-cost natural gas and environmental regulation. Thermal coal exports can range from 0 to 5 million tonnes per year depending on market conditions.

The average quality of CAPP coals is roughly 12,500 Btu/lb nar, under 10% ash and less than 1% sulfur. Overall quality has been declining since producers tend to mine their highest-quality reserves first. Almost all CAPP coals are low in sulfur content.

Average mining and transportation costs are high in CAPP, reflecting a mature basin where low-cost reserves are mined out. These high costs make it difficult for CAPP producers to earn a margin in the export market.

**Illinois Basin (ILB).** Marketable thermal coal reserves in the Illinois Basin (Illinois, Indiana and western Kentucky) are quite large in the range of several billion tons. Low-strip-ratio surface reserves are largely controlled by two companies and will be gone within 10 years. Abundant dragline-amenable, mid-strip-ratio surface reserves remain, as do significant reserves of underground thermal coal at fairly shallow depth.

Production in the ILB grew in the early 2000s, peaked in 2014 then declined sharply through 2016 as domestic demand fell. The domestic and export market for ILB coal has rebounded and production has increased in 2017 and 2018. Costs declined through 2016, as poor market conditions forced operators into austerity programs, but are now rising as demand returns and royalties rise along with sales prices. Productivity improvement will help to minimize cost increases.

ILB coal is typically a high-volatile, bituminous thermal coal. Average ILB thermal coal quality is around 11,300 Btu/lb, under 10% ash, and close to 3% sulfur, with great variation seen around those figures. Chlorine content can be high in some of the deeper coals. Its low cost allows ILB thermal coal to penetrate the export market, but its high sulfur reduces its potential market and allows those customers willing to consume it to heavily discount the price.



AMERICAN OVERSIGHT

EXT-18-2615-G-000307

**Powder River Basin (PRB).** This purely thermal coal basin possesses a very large marketable reserve base about twice the size of that in the ILB. Coal is produced from 17 mines almost all of which are large surface operations. Coal seams are thick allowing for efficient and low-cost mining. Surface mining cash costs in the PRB are typically extremely low. Just two companies produce over 50% of the coal in the PRB.

Just as elsewhere in the rest of the U.S., competition with low-cost natural gas is hindering production. From its peak in 2015, production has fallen by about 20%. Production will stay under pressure as long as natural gas prices stay low. Even so, production exceeds 300 million tons per year, making the PRB the largest U.S. coal producing basin.

The PRB possesses mostly low-sulfur, sub-bituminous thermal coal. Sub-bituminous coal quality ranges from 8,000 Btu/lb to 9,400 Btu/lb, with low ash content (well under 10%) and very low sulfur content (averaging under 0.5%). Some low-ash, very low-sulfur bituminous coal is produced as well, with an energy content of about 10,500 Btu/lb.

Some PRB coal is exported, largely to Asia and South America. It competes well with Indonesian coal for markets in northeast Asia, especially South Korea and Japan. However, the lack of available export port capacity limits its potential as new port projects experience permit denials and litigation continues. Meanwhile, modest volume is exported though Canadian ports in British Columbia when they have available capacity.



AMERICAN OVERSIGHT

EXT-18-2615-G-000308

## *APPENDIX H: Competitive Assessment of U.S. vis-à-vis Global Suppliers*[cvi]

*Australia*

Coal producers in Australia are, by far, the largest and most significant competitor to U.S. metallurgical coal exporters. Where qualities are similar, the U.S. and Australia compete for met markets globally.

Advantages enjoyed by Australian producers include the superiority of their low- and mid-volatility products as well as the size and diversity of their production base. The reserve base of equivalent, high-quality coal is much smaller in the U.S. where there are also fewer, and generally smaller producers.

U.S. metallurgical coal mining costs are higher on average than those in Australia, and U.S. rail costs to port are two to three times higher than rail-to-port costs in Australia. To Asia, ocean freight rates favor Australian shippers; to Europe, they favor U.S. shippers. Where quality is similar, then, the total cost structure provides a net margin advantage to Australian metallurgical coal producers in Asia and usually to U.S. coal producers in Europe.

But, qualities are not always similar. While Australia enjoys a reputation as the premier low- and mid-volatility products, the U.S. is recognized for having a significant high-volatility reserve and production base that is far superior to that found in Australia, given its desirability in blends requiring highly fluid coal. On the other hand, some U.S. coals are too expanding and need to be blended with others to balance.

For thermal coals, the comparison is more nuanced. U.S. thermal coal producers in Appalachia and the Illinois Basin compete with Australian thermal coal producers for markets in Asia.

On an energy-adjusted basis, thermal coal costs at U.S. Appalachian mines are slightly higher than Australian mining costs but rail costs are roughly twice those in Australia, creating a definite cost disadvantage to Australian thermal coal mines. Barge costs for Illinois Basin thermal coal mines to port are also twice the cost of Australian inland transportation, but ILB mining costs are significantly lower on an energy-adjusted basis. On an energy-adjusted basis, the average total FOB port cost of ILB thermal mines is lower than in Australia.

However, the high sulfur content of Illinois Basin coal is heavily penalized by consumers. The penalty is usually greater than the cost advantage leaving Australian producers with the advantage over U.S. ILB coals in Asian markets.

Thus, FOB origin port costs for Australian thermal producers are typically lower than those in the U.S. giving Australian producers pricing flexibility versus their higher cost U.S. competitors. Furthermore, into the Asian market, Australia enjoys a transportation cost advantage over U.S. metallurgical coal producers. In the Atlantic region, however, transportation favors U.S. coals where U.S. coals can often out-compete Australian metallurgical and thermal coals.

*Russia*

U.S. and Russian coals compete in both thermal and metallurgical markets. Geographically, competition is centered in Europe and the Mediterranean, where both countries have an ocean freight advantage over Australian shippers.



AMERICAN OVERSIGHT

Both metallurgical and thermal coal in Russia are produced at costs lower than in the U.S. (FOB mine). Rail costs, however, favor U.S. producers given the very long Russian rail haulages both east and west from the mines in central Russia. On the other hand, U.S. ocean freight rates to Asia are higher than Russian rates. To the Atlantic, however, Russian ocean freight is more expensive, partly because much of the coal is delivered using smaller vessels.

U.S. coking coal is of better quality than Russian coking coal. However, Russian coals are very low in sulfur, an advantage over U.S. coals. In the PCI category, Russian coal is highly prized in Europe given its low sulfur and high energy content. It easily displaces PCI coal from other sources.

Russian thermal coal is helpful to consumers in Europe given its very low sulfur content. It is used to blend with higher sulfur coals.

Russia has an advantage in its ability to load full capesize vessels at many ports. U.S. suppliers are limited to loading small capesize vessels at best, and often just Panamax vessels unless "light-loading" methods are used. This is not as important in metallurgical markets, where customers usually prefer a smaller vessel. But in thermal markets, consumers usually want to keep costs as low as possible and prefer larger vessels when they can be used. This is an advantage to Russian suppliers.

U.S. suppliers have an advantage over Russian suppliers (both thermal and metallurgical) in their ability to provide security of supply through regular shipments of coal. The harsh Russian winter can interrupt deliveries. U.S. suppliers are also careful to provide their consumers with uniform shipment quality.

Finally, Russia is an economy in transition to being market-based. At this time, U.S. suppliers can provide greater fiscal and regulatory stability as well as a stable currency.

*Canada*

The U.S. and Canada compete for metallurgical coal markets globally when qualities are similar. Metallurgical coal competition between Canada and the U.S. is limited by geography and trade flow. Canada sends the majority of its metallurgical coal to Asia; the U.S. sends most of its coal to the EU.

Average mining and coal preparation costs are similar in both countries. Inland transportation to port favors Canada, but port costs are lower in the U.S. Average total FOB port costs are basically equal. But Canada exports from its west coast (and recently smaller volumes from its east coast) and the U.S. exports metallurgical coal from its east coast. Both countries have secure supply and uniformity in shipments. Thus, competition is based on required quality and the impact of ocean freight rates on delivered cost.

At times of high prices, when U.S. coal incentives to Asia are greater, there is some competition, but the greater freight cost to Asia from the U.S. east coast limits U.S. exports in most Asian markets. Canadian low- and mid-volatility, low-fluidity coals are stable parts of Northern Asian blends. The U.S. coals can be used to enhance fluidity in the blends, and lower the ash content, but tend only to be economic when prices are very high.



AMERICAN OVERSIGHT

*Mozambique*

Mozambique is an emerging supplier of metallurgical coal. Competition with the U.S. is currently limited and sporadic. Should it occur, the U.S. has an advantage given its lower mine and inland transportation costs.

The U.S. coal is perceived to have a better quality as regards the level of impurities. Metallurgical coal in Mozambique is at the high end for sulfur and ash. However, Mozambique has high fluidity coal that is helpful in certain blends.

*Indonesia*

The U.S. and Indonesia compete in Asian thermal markets, particularly those in Northeast Asia. Specifically, U.S. Powder River Basin (PRB) coal competes with Indonesian sub-bituminous coal.

U.S. coal producers enjoy a substantial mine cost advantage over Indonesian producers. However, Indonesian inland transportation (barge to transshipment facility) costs are roughly one-third the cost of U.S. rail to Canadian ports. The absence of a U.S. west coast port is a clear disadvantage to U.S. producers, since U.S. coal must export either in Canada, where capacity is limited or in the U.S. Gulf of Mexico which increases both inland transportation and ocean freight costs.

Furthermore, Indonesia's producer-owned logistics chain gives them an advantage over the U.S., where third party transportation and infrastructure costs are higher. Port costs in the U.S. are a few dollars per tonne greater than typical offshore transloading costs in Indonesia. Coal specifications are similar for sub-bituminous coal, but the U.S. enjoys a general advantage in providing a stable and secure source of supply that consistently meets contract specifications. Indonesian producers must cope with the constant threat of rising taxes and royalties, licensing and permitting issues, and the requirement that Indonesian coal is obligated first and foremost to the Indonesian domestic market.

*Colombia*

Colombia and the U.S. compete directly in Atlantic thermal markets. With its low mining, inland transportation and port costs, and with its ocean freight advantage to markets in Europe and the Mediterranean, Colombian coal producers are able, when necessary, to lower their prices more than their competitors are willing or able to do.

Colombian coal is low in sulfur and ash content and competes well against certain U.S. coals with higher sulfur content, such as those in NAPP. While consumers in the European Union desire NAPP and ILB coals for their very high energy content, they dislike the high sulfur content and, in the case of the ILB, the high chlorine content. Including Colombian coal in a blend with NAPP and ILB coals with Colombian coal lowers the sulfur and chlorine contents.

Financial transactions are easier to manage in the U.S. as lenders are more efficient given the existence of credit information and better regulation which make the coal transactions less risky. Also, in Colombia, government policy is discouraging existing producers from investing.



AMERICAN OVERSIGHT

*South Africa*

For years, South Africa has been slowly lowering its exports to the Atlantic and increasing its exports to the Pacific, particularly India. For this reason, direct competition between South Africa and the U.S. is declining. Where they compete on a head-to-head basis, South Africa has an advantage with its lower FOB mine, inland transportation and port costs. Rail capacity constraints for rail shipments from mine to port are a problem, however.

South African coal quality is declining as the availability of standard 6,000 kcal/kg coal is declining. South Africa is increasingly offering a non-standard high-ash product, similar to what the Australians offer in the seaborne market. U.S. coals have a quality advantage, although washing rates and yields determine the final South African specification. If costs allow, South African coal can be washed to any normal standard specification.

Policy uncertainty is high in both countries, but fiscal stability is greater in the U.S. There is growing concern that the South African government will institute some form of a domestic mine obligation if South African public utility company Eskom is unable to source sufficient coal from domestic suppliers under normal market circumstances. These uncertainties create an advantage for U.S. producers, who operate in much more stable market.

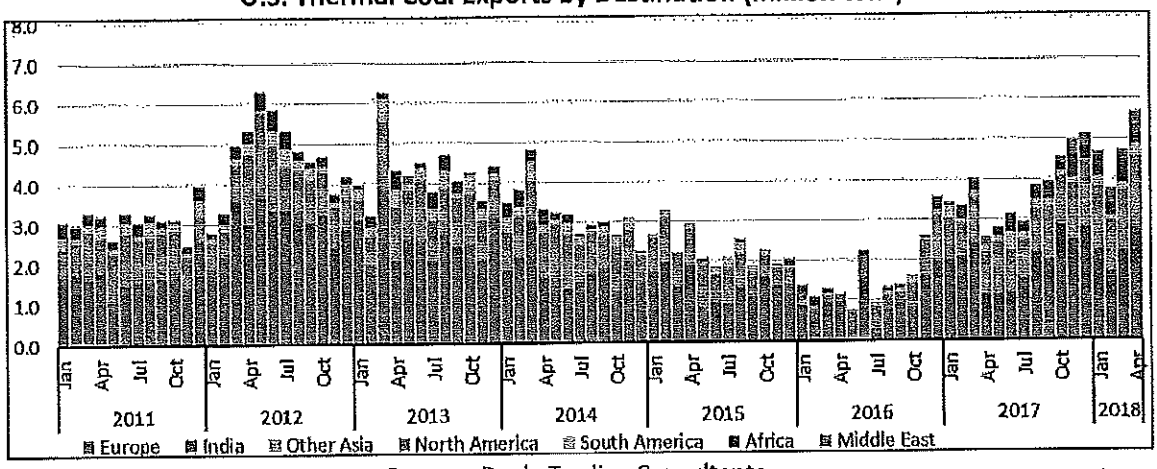


AMERICAN OVERSIGHT

EXT-18-2615-G-000312

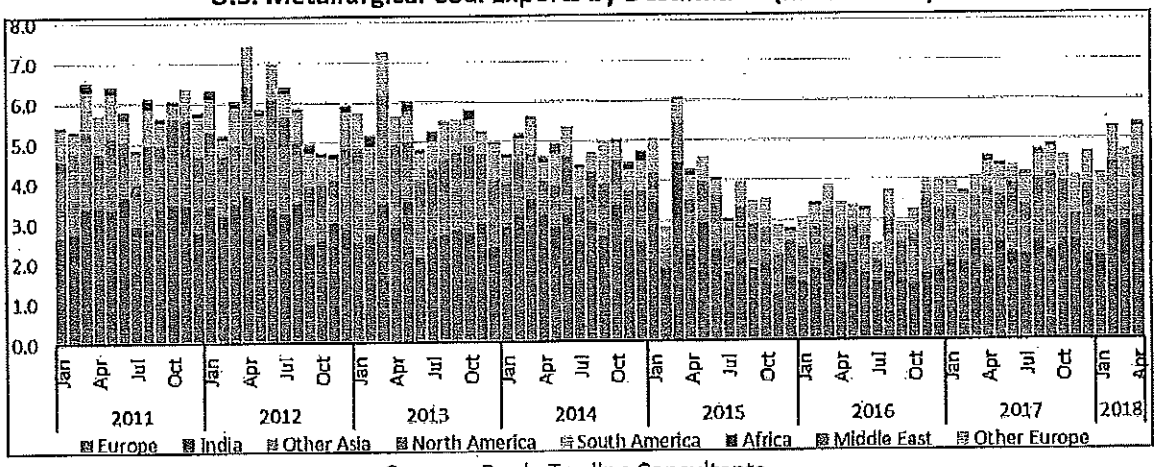
## *APPENDIX I: U.S. Thermal & Metallurgical Coal Exports by Destination*

**U.S. Thermal Coal Exports by Destination (million tons)**




Source: Doyle Trading Consultants

**U.S. Metallurgical Coal Exports by Destination (million tons)**




Source: Doyle Trading Consultants



AMERICAN OVERSIGHT

## *APPENDIX J: Coal Financing Policies of Key Lending Institutions*

| Coal Financing Policies of Key International Lending Institutions[45] | | | |
|---|---|---|---|
| **Bank/Entity** | **U.S. share %** | **Coal financing, 2007-2013** | **Policy on financing coal-fired power plants** |
| African Development Bank | 6%[46] | $2.84 billion | 2012 AfDB energy sector policy states that the bank will support coal power plants when investment will have a strong development impact and is also environmentally responsible. |
| Asian Development Bank | 16%[47] | $1.69 billion | 2009 ADB energy policy[48] states the Bank will support coal-fired power plants selectively if adequate emissions mitigation measures are incorporated into project design. However, ADB has not pursued recent coal projects of any significance. |
| Asian Infrastructure Investment Bank | 0% | N/A (bank launched in 2016) | June 2017 policy draft energy strategy states "Carbon efficient oil- and coal-fired power plants would be considered if they replace existing less efficient capacity or are essential to the reliability and integrity of the system, or if no viable or affordable alternative exists in specific cases. The Bank will pay attention to the particular needs of its less developed members."[49] |
| European Bank for Reconstruction and Development | 0% | $.41 billion | 2014 policy states coal-fired plants will only be financed "in rare and exceptional circumstances."[50] |
| World Bank: | | | 2013 WB policy eliminates financing support for coal power generation except in rare circumstances.[51] |
| *International Bank for Reconstruction and Development* | 16%[52] | $4.6 billion | |
| *International Development Agency* | 54%[53] | $.05 billion | |
| *International Finance Corporation* | 21%[54] | $1.83 billion | |

[45] Unless otherwise noted, information drawn from 2017 IEA report on *International Coal plant financing*, p. 66. Available at http://www.iea.org/access2017/

[46] https://www.afdb.org/fileadmin/uploads/afdb/Documents/Boards-Documents/ADB_-_Statement_of_Voting_Powers_30_April_2018.pdf

[47] https://www.adb.org/site/investors/credit-fundamentals/capital-structure

[48] https://www.adb.org/sites/default/files/institutional-document/32032/energy-policy-2009.pdf

[49] https://www.aiib.org/en/policies-strategies/strategies/sustainable-energy-asia/.content/index/_download/aiib-energy-sector-Strategy-2017.pdf

[50] http://www.ebrd.com/documents/climate-finance/methodology-for-the-assessment-of-coal-fired-generation-projects.pdf

[51] http://www.worldbank.org/en/news/feature/2013/07/16/world-bank-group-direction-for-energy-sector

[52] http://siteresources.worldbank.org/BODINT/Resources/278027-1215524804501/IBRDCountryVotingTable.pdf

[53] http://siteresources.worldbank.org/BODINT/Resources/278027-1215524804501/IDACountryVotingTable.pdf

[54] http://siteresources.worldbank.org/BODINT/Resources/278027-1215524804501/IFCCountryVotingTable.pdf



AMERICAN OVERSIGHT

[i] World Coal Association 2018, https://www.worldcoal.org/coal
[ii] BP Statistical Review of World Energy 2018, https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review/bp-stats-review-2018-full-report.pdf
[iii] International Energy Agency (IEA), 2018 Coal Information Overview https://webstore.iea.org/download/direct/1136?filename=coal_information_2018_overview.pdf
[iv] International Electrotechnical Commission, 2018.
[v] IEA 2018 Coal Information Overview op. cit.
[vi] U.S. Energy Information Administration, www.eia.gov/coal/reserves
[vii] National Mining Association, U.S. Coal Industry Statistics, https://nma.org/wp-content/uploads/2017/12/c_most_requested.pdf
[viii] American Coalition for Clean Coal Electricity, Coal Facts, http://www.americaspower.org/issue/coal-facts/
[ix] White House, "Unleashing American Energy", June 2017 https://www.whitehouse.gov/briefings-statements/remarks-president-trump-unleashing-american-energy-event/
[x] Ernst & Young, "U.S. Coal Exports: National and State Economic Contributions," prepared for the National Mining Association, May 2013, and Management Information Services, Inc.
[xi]Roger H. Bezdek, "The Economic Contribution of Coal to the American Economy," *American Coal*, 2018, Issue 1, pp. 26-30; Roger H. Bezdek, "Coal Industry and Appalachia," *Public Utilities Fortnightly*, October 1, 2017, pp. 32-36, http://misi-net.com/publications/PUF-1017.pdf; Management Information Services, Inc., "Analyzing and Estimating the Economic and Job Benefits of U.S. Coal," prepared for the U.S. Department of Energy, September 2017, http://misi-net.com/publications/DOECoal-0917.pdf.
[xii]Ernst & Young, op. cit., and Management Information Services, Inc.
[xiii]Management Information Services, Inc., op. cit.
[xiv]DOE Secretary Perry noted that "This Administration looks forward to making available even more of our abundant natural resources to allies and partners like Ukraine in the future to promote their own energy security through diversity of supply and source. Partnerships like this are crucial to the path forward to achieve energy dominance." See "Secretary Perry and Secretary Ross Hail New Coal Deal with Ukraine," U.S. Department of Energy press release, July 31, 2017, https://energy.gov/articles/secretary-perry-and-secretary-ross-hail-new-coal-deal-ukraine.
[xv]Management Information Services, Inc., "Job Benefits of U.S. Coal Exports to Ukraine," prepared for the National Coal Council, May 2018.
[xvi]Association of American Railroads, "Railroads and Coal," May 2018. Coal dominates rail traffic in major coal producing states. In Kentucky, West Virginia and Wyoming, for example, coal accounted for 72%, 87%, and 94%, respectively, of total originated rail tonnage in 2016.
[xvii]The five major coal-transporting U.S. railroads are BNSF Railway, Canadian National Railway, CSX Transportation, Norfolk Southern Railway, and Union Pacific Railroad. Ibid.
[xviii] U.S. Energy Information Administration (EIA), "U.S. coal exports increased by 61% in 2017 as exports to Asia more than doubled," April 19, 2018, https://www.eia.gov/todayinenergy/detail.php?id=35852.
[xix] EIA, "Quarterly Coal Report," July 6, 2018, https://www.eia.gov/coal/production/quarterly/
[xx] EIA, "Coal Explained – Where Our Coal Comes From," https://www.eia.gov/energyexplained/index.php?page=coal_where
[xxi] Mine Safety and Health Administration from ABB Energy Velocity
[xxii] Brian Solomon and Patrick Young, Coal Trains: The History of Railroading and Coal in the United States, Voyageur Press, 2009.
[xxiii] Association of American Railroads, "Railroads and Coal", May 2018, https://www.aar.org/wp-content/uploads/2018/05/AAR-Railroads-Coal.pdf
[xxiv] CSX Quarterly Financial Report: Fourth Quarter 2017, http://phx.corporate-ir.net/phoenix.zhtml?c=92932&p=quarterlyearnings2017
[xxv] Norfolk Southern Quarterly Financial Data: Fourth Quarter 2017, http://www.nscorp.com/content/dam/QuarterlyEventFiles/4q-2017/4q2017_financial_data.pdf



AMERICAN OVERSIGHT

[xxvi] The American Waterways Operators, Industry Facts, https://www.americanwaterways.com/initiatives/jobs-economy/industry-facts

[xxvii] U.S. Army Corps of Engineers, , "Final Waterborne Commerce Statistics for Calendar Year 2016", https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll2/id/1655 and "The U.S. Waterway System: 2016 Transportation Facts & Information" https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll2/id/1829%20, and American Society of Civil Engineers, "Infrastructure Report Card – Ports", https://www.infrastructurereportcard.org/cat-item/inland-waterways/

[xxviii] Host, Finn; *Status of U.S. Coal Exports*; April 2017. Available: http://www.uscoalexports.org/wp-content/uploads/2018/02/Status-of-U.S.-Coal-Exports-Finn-Host-April-2017.pdf; U.S. Coal Exports by Year, Quarter, and Customs District, 2002 – 2018; U.S. Energy Information Administration and the U.S. Department of Commerce, Bureau of the Census, Monthly Report EM 545; Available: www.eia.gov/coal/archive/coal_historical_exports.xlsx; USA Trade Online; Port-level Exports; Available: https://usatrade.census.gov/

[xxix] Derived from IEA 2018 Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf

[xxx] IEA 2018 Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf

[xxxi] Derived from IEA Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf and World Coal Association, Coal Market & Pricing, https://www.worldcoal.org/coal/coal-market-pricing

[xxxii] IEA 2018 Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf

[xxxiii] UN Climate Change Annual Report 2017, https://unfccc.int/resource/annualreport/

[xxxiv] BP Statistical Review of World Energy 2018, https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review/bp-stats-review-2018-full-report.pdf

[xxxv] Peabody Energy Investor Presentation, https://www.peabodyenergy.com/Peabody/media/MediaLibrary/Investor%20Info/Jefferies-2018-Investor-Presentation-8-6-18.pdf

[xxxvi] EIA International Energy Statistics, Beta Tool, https://www.eia.gov/beta/international/

[xxxvii] Ibid.

[xxxviii] Ibid.

[xxxix] Ibid.

[xl] IEA Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf

[xli] Ibid.

[xlii] Derived from Quarterly Coal Report – Release Date July 6, 2018, https://www.eia.gov/coal/production/quarterly/ and IEA Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf

[xliii] IEA Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf

[xliv] Derived from Quarterly Coal Report – Release Date July 6, 2018, https://www.eia.gov/coal/production/quarterly/ and IEA Coal Information: Overview (2018 edition), https://webstore.iea.org/download/direct/1136?fileName=Coal_Information_2018_Overview.pdf

[xlv] Indonesia-Investments, https://www.indonesia-investments.com/news/todays-headlines/coal-mining-update-indonesia-production-export-price/item8894?

[xlvi] Australian Mining, https://www.australianmining.com.au/news/australian-coal-exports-set-new-record-in-2017/

[xlvii] Coal Price DB, https://www.oanda.com/solutions-for-business/historical-rates/main.html

[xlviii] Japan's Ministry of Economy, Trade, and Industry (METI), "Strategic Energy Policy of Japan," April 2014, Tokyo.



AMERICAN OVERSIGHT

[xlix] National Mining Association, U.S. Bituminous Coal Exports, 1985-2017, Updated February 2018, https://nma.org/wp-content/uploads/2017/03/bituminous_coal_exports_17.pdf

[l] Bureau of Land Management, https://www.blm.gov/programs/energy-and-minerals/coal/coal-data

[li] https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/6941 Port of Virginia, 2065 Master Plan, http://www.portofvirginia.com/wp-content/uploads/2016/02/TPOV-master-plan-2065-final-020316.pdf

[lii] National Waterways Foundation, Economic Impact of Increased Investment in Inland Waterways System by Universities of Kentucky and Tennessee, November 2014, http://waterwayscouncil.org/featured/national-waterways-foundation-commissioned-study-examines-economic-impact-of-increased-investment-in-inland-waterways-system/

[liii] Inland Waterways Users Board Meeting No. 86, Financial Report & Project Summaries

[liv] https://www.congress.gov/bill/113th-congress/senate-bill/574

[lv] Lighthouse Resources, http://www.lighthouseresourcesinc.com/millennium-bulk-terminals/

[lvi] Great Lakes Ports Association, http://www.greatlakesports.org/issues/harbor-maintenance-trust-fund/

[lvii] Ibid.

[lviii] U.S. Government Publishing Office, https://www.gpo.gov/fdsys/pkg/PLAW-113publ121/pdf/PLAW-113publ121.pdf

[lix] Millennium Bulk Terminal EIS, http://www.millenniumbulkeiswa.gov/nepa-comment-archive.html

[lx] Ibid.

[lxi] Washington State Government, Millennium Terminal EIS, https://fortress.wa.gov/ecy/publications/documents/1706013.pdf

[lxii]Millennium Terminal, http://www.millenniumbulk.com/wp-content/uploads/2017/10/401-WQ-Certification-Denial-Letter.pdf

[lxiii] White House, https://www.whitehouse.gov/presidential-actions/presidential-executive-order-establishing-discipline-accountability-environmental-review-permitting-process-infrastructure/

[lxiv] White House, https://www.whitehouse.gov/wp-content/uploads/2018/04/MOU-One-Federal-Decision-m-18-13-Part-2-1.pdf

[lxv] Congressional testimony of Roger Martella, *A Hard Look at the Administration's Revised Guidance for Greenhouse Gas Emissions and Climate Change under NEPA Law and Practice*, June 2016, https://naturalresources.house.gov/uploadedfiles/martellatestimony.pdf

[lxvi] Obama Administration, https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance

[lxvii] White House, https://www.whitehouse.gov/presidential-actions/presidential-executive-order-promoting-energy-independence-economic-growth/

[lxviii] Washington State Government, Millennium Bulk Terminal EIS, http://www.millenniumbulkeiswa.gov/assets/chapter_6.8_greenhouse_gas_emissions.pdf

[lxix] Frank Wolak, Stanford University, *Assessing the Impact of the Diffusion of Shale Oil and Gas Technology on the Global Coal Market*, November 2017, https://ngl.stanford.edu/sites/default/files/40%20Wolak_NGI_2017.pdf

[lxx] IEA, https://www.iea.org/weo2017/

[lxxi] Obama Administration, https://obamawhitehouse.archives.gov/the-press-office/2013/06/25/remarks-president-climate-change

[lxxii] U.S. Treasury Department, https://www.treasury.gov/press-center/press-releases/Pages/jl2195.aspx

[lxxiii] Export-Import Bank, https://www.exim.gov/news/export-import-bank-board-adopts-revised-environmental-guidelines-reduce-greenhouse-gas

[lxxiv] Bank for Reconstruction and Development, https://www.ebrd.com/what-we-do/sectors-and-topics/ebrd-energy-strategy.html

[lxxv] IEA Clean Coal Centre, *International finance for coal-fired power plants*, p. 27-28, https://www.usea.org/sites/default/files/International%20finance%20for%20coal%20fired%20power%20plants%20-%20ccc277.pdf

[lxxvi] IEA, Ibid

[lxxvii] IEA, Ibid



AMERICAN OVERSIGHT

[lxxviii] IEA, Ibid
[lxxix] World Coal Association, https://www.worldcoal.org/sites/default/files/resources_files/The%20Power%20of%20high%20efficiency%20coal%20-%20WCA%20-%200316.pdf
[lxxx] U.S. Treasury, https://www.treasury.gov/resource-center/International/development-banks/Pages/guidance.aspx
[lxxxi] African Development Bank, https://www.afdb.org/en/news-and-events/launch-of-the-japan-africa-energy-initiative-remarks-by-akinwumi-adesina-president-of-the-african-development-bank-letter-of-intent-signing-ceremony-at-the-africa-union-summit-17155/
[lxxxii] African Development Bank, https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/power-africa-initiative/energy-power/
[lxxxiii] METI, http://www.meti.go.jp/english/press/2017/pdf/1107_001a.pdf
[lxxxiv] U.K. Government, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700613/powering-past-coal-declaration.pdf
[lxxxv] Export Import Bank, https://www.exim.gov/policies/ex-im-bank-and-the-environment/international-environmental-and-social-guidelines
[lxxxvi] *2010 Consolidated Appropriations Act*, section 7079. https://www.congress.gov/111/plaws/publ117/PLAW-111publ117.pdf
[lxxxvii] OPIC, *Revised Environmental and Social Policy Statement* (January 13, 2017). Available at https://www.opic.gov/sites/default/files/files/final%20revised%20ESPS%2001132017(1).pdf
[lxxxviii] U.S. Congress, https://www.congress.gov/bill/115th-congress/senate-bill/2463/text
[lxxxix] Obama Administration, https://obamawhitehouse.archives.gov/the-press-office/2013/06/30/fact-sheet-power-africa
[xc] USAID, https://www.usaid.gov/powerafrica/
[xci] USAID, https://www.usaid.gov/sites/default/files/documents/1869/ElectrifyAfricaAct_ReportCongress.pdf
[xcii] USAID, https://www.usaid.gov/sites/default/files/documents/1860/USAID_PA_Roadmap_April_2016_TAG_508opt.pdf
[xciii] USAID, https://www.usaid.gov/news-information/press-releases/mar-1-2018-usaid-administrator-mark-greens-remarks-fourth-annual-powering-africa-summit
[xciv] USTDA, https://www.ustda.gov/events/2017/south-and-southeast-asia/coal-fired-power-emissions-control-technologies-reverse-trade
[xcv] USTDA, https://www.ustda.gov/news/press-releases/2018/ustda-accepting-initial-proposals-cleaner-coal-projects-emerging-markets
[xcvi] IEA Energy Access 2017, http://www.iea.org/access2017/
[xcvii] IEA Coal Information 2017, op. cit., pg. xi
[xcviii] American Council for Capital Formation, CDN, http://cdn.accf.org/wp-content/uploads/2017/04/ACCF-CPR-Special-Report_Coal-Financing-FINAL.pdf
[xcix] U.S. Department of Commerce, https://www.commerce.gov/news/press-releases/2017/07/secretary-ross-and-secretary-perry-hail-new-coal-deal-ukraine
[c] Bloomberg, https://www.bloomberg.com/news/articles/2018-06-15/china-s-taxing-america-s-coal-just-as-it-was-looking-to-buy-more
[ci] https://www.businessinsider.com/trump-tariffs-china-trade-war-chinese-goods-2018-8
[cii] Hurriyet, http://www.hurriyetdailynews.com/turkey-to-respond-to-us-over-steel-aluminum-tariffs-132770
[ciii] CNBC, https://www.cnbc.com/2014/11/13/rise-of-protectionism-in-china-a-threat-to-commodities-imports.html
[civ] These descriptions summarize key elements of common coal industry knowledge supplemented by information provided by Wood Mackenzie, Inc.
[cv] Ibid.
[cvi] Ibid.



AMERICAN OVERSIGHT




NATIONAL COAL COUNCIL

## Secretary Perry's Request

*"... develop a white paper assessing opportunities to advance U.S. coal exports."*

## Key Questions to Address

*~ What market, infrastructure & policy measures could be undertaken to increase export opportunities for U.S. coal?*
*~ What global market dynamics present opportunities for increased U.S. coal exports?*
*~ How can U.S. coal capitalize on its advantages & become more competitive in international markets?*
*~ What institutional & regulatory constraints are limiting the advancement of U.S. coal exports?*

## Strategic Objective

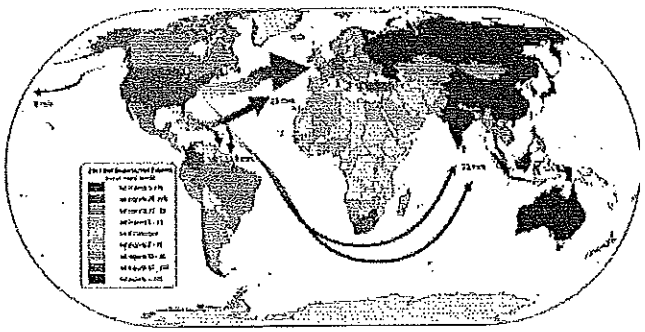
*Advance U.S. coal exports as part of the nation's efforts to achieve U.S. energy dominance, enhance international security & eliminate global energy poverty.*

## Principal Findings

- U.S. reserves of thermal and metallurgical coal are vast and can support both U.S. domestic needs and expanding international market demand.
- Coal exports provide the U.S. with significant economic and job benefits.
- Global coal trade is a robust and growing market; worldwide coal trade has more than doubled since 2000.
- While robust in many aspects, U.S. coal export infrastructure would be enhanced with improvements.
- U.S. and international policies limiting financial support for development of coal facilities overseas restricts opportunities for U.S. coal exports.
- The greatest competitive advantage U.S. coal has vis-à-vis other global suppliers is its security and regularity of supply.

| Country | Million tonnes | Share |
|---|---|---|
| U.S | 258,709 | 25.0% |
| Russia | 160,364 | 15.5% |
| Australia | 144,918 | 14.0% |
| China | 139,919 | 13.5% |
| India | 97,728 | 9.4% |
| Germany | 36,100 | 3.5% |
| Ukraine | 34,375 | 3.3% |
| Poland | 25,811 | 2.5% |
| Kazakhstan | 25,605 | 2.5% |
| Indonesia | 22,598 | 2.2% |
| Other | 88,885 | 8.6% |
| Total | 1034,702 | 100% |

Source: BP Statistical Review of World Energy, June 2017



**Major U.S. Coal Trade Flows (2017)**

AMERICAN OVERSIGHT

## Principal Recommendations

*Establish a DOE-led, government-wide COAL EXPORTS TASK FORCE to monitor and coordinate policy developments relevant to advancing U.S. coal exports.*

*A Coal Exports Task Force would facilitate implementation of the following NCC recommendations.*

COAL PRODUCTION

- **Develop & deploy advanced coal mining & processing technologies.** Technology improvements and innovations can reduce coal production costs, thus making U.S. coal more competitive in international markets. Production-enhancing technologies could include automation, robotics, big data/advanced computing, machine learning/artificial intelligence, and remote mining. Advanced coal preparation and upgrading technologies can increase coal heat content, remove impurities and lower costs.

- **Enhance U.S. mining operations with export potential in both traditional & non-traditional supply regions.** State tax credits, similar to those put in place in the State of Virginia, can provide support for existing coal mining operations and potentially be revenue positive. Infrastructure development in Alaska, Arkansas and Oklahoma could support new export mines. New and existing mine operations may benefit from eliminating barriers on Federal lands associated with bonus payments, rents and royalties.

RIVER TRANSPORT

- **Streamline funding support for the nation's inland waterways system.** Regular maintenance and dredging of inland waterways river channels enhance non-restricted movements of coal barge traffic, facilitating the cost-effective flow of U.S. coal exports. Deployment of funds from the current excess balance of fees from the Harbor Maintenance Tax could help maintain inland waterway locks and dams.

PORTS & TERMINALS

- **Enhance coal export port/terminal capacity on the U.S. Atlantic, Gulf & Pacific Coasts.** Competitiveness of U.S. coals in international markets would be greatly enhanced through 1) dredging of key export ports and shipping channels to accommodate larger vessels, 2) improved planning and cooperation between Federal and state authorities on environmental reviews/permitting and 3) reform of NEPA and related permitting processes. Further study is needed to assess the potential to reduce export constraints through development of export terminals on Federal properties.

TRADE & INTERNATIONAL RELATIONS

- **Eliminate policy & technology barriers to financing coal facility deployment in international markets.** Reforms are needed to policies in place at the following organizations that are inhibiting development of coal mines and power plants: U.S. Export-Import Bank, Overseas Private Investment Corporation (OPIC), U.S. Agency for International Development (USAID), Multilateral Development Banks (MDBs).

- **Capitalize on trade expansion opportunities; assess U.S. trade policies that inhibit or promote U.S. coal exports.** The reduction/elimination of coal-punitive trade barriers and the pursuit of coal-supportive bilateral relationships could facilitate enhanced U.S. coal exports. Support of the U.S. Trade & Development Agency (USTDA), African Development Bank and Japan-US Strategic Energy Partnership (JUSSEP) would advance U.S. coal exports.

ECONOMIC DEVELOPMENT IN INTERNATIONAL MARKETS

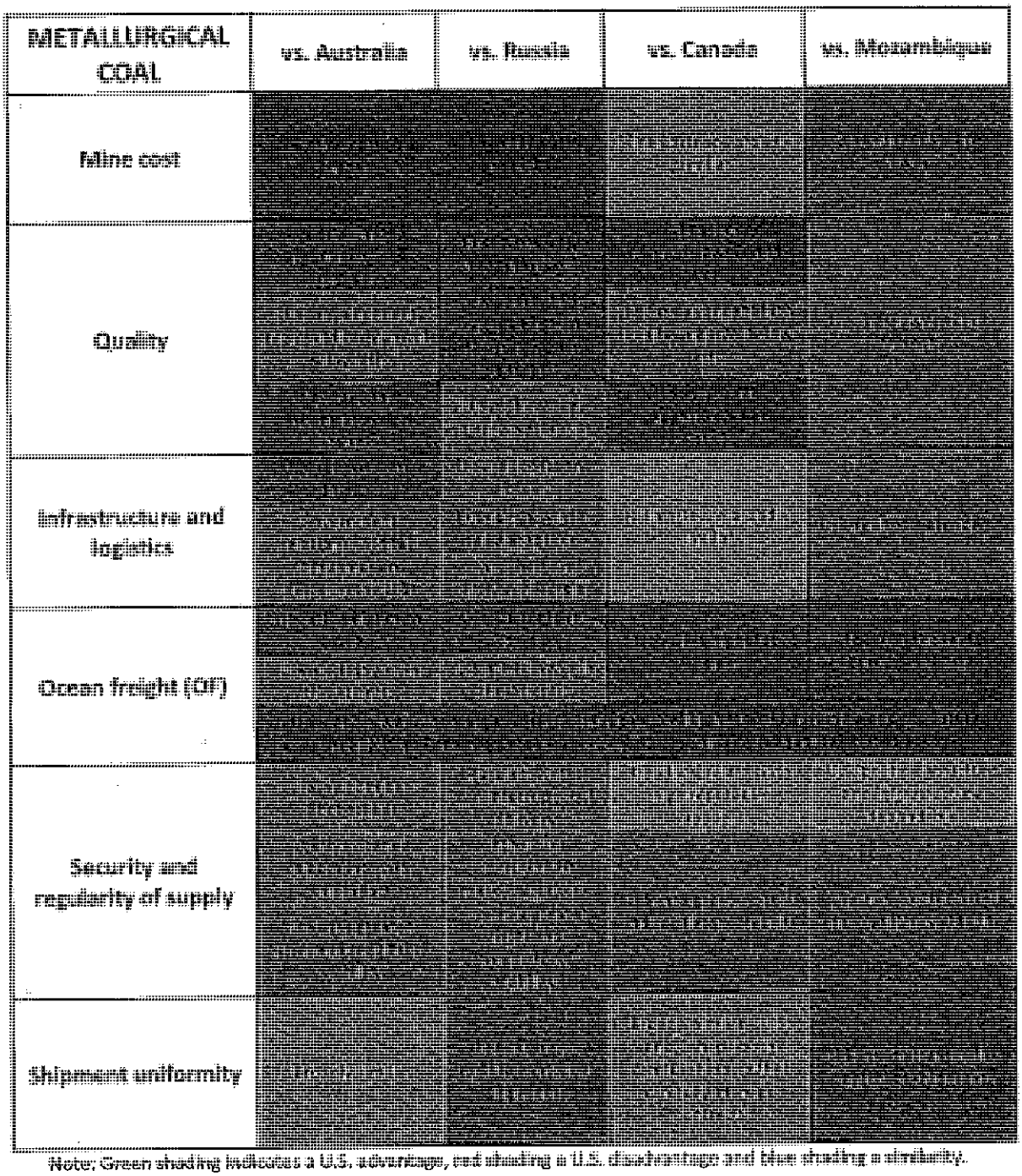
- **Support efforts to advance economic growth in international markets and the global development of advanced coal technologies.** Coal export supportive initiatives include creation of a new international finance corporation to assist developing nations' efforts to achieve economic growth/reduce poverty, and establishment of a global fossil fuel alliance to promote energy access/security.

https://www.nationalcoalcouncil.org/page-NCC-Studies.html

AMERICAN OVERSIGHT

# Competitive Assessment of U.S. Coal Exports

## Advantages and Challenges of U.S. Metallurgical Coal versus Competitive Supply by Country




Note: Green shading indicates a U.S. advantage, red shading a U.S. disadvantage and blue shading a similarity.

AMERICAN OVERSIGHT

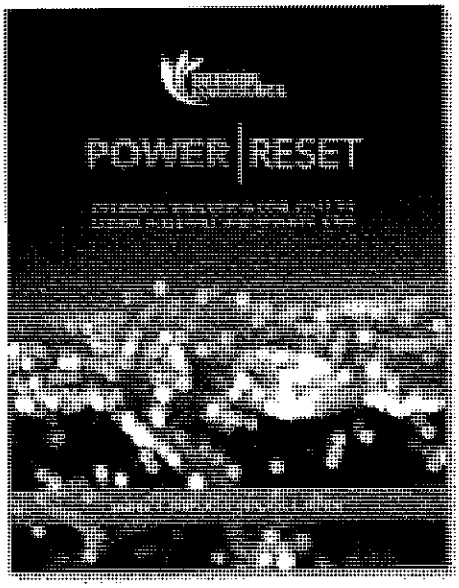
## Advantages and Challenges of U.S. Thermal Coal versus Competitive Supply by Country

| THERMAL COAL | vs. Australia | vs. Indonesia | vs. Russia | Colombia | South Africa |
|---|---|---|---|---|---|
| Mine cost | | | | | |
| Quality | | | | | |
| Infrastructure and logistics | | | | | |
| Ocean freight (OF) | | | | | |
| Security and regularity of supply | | | | | |
| Shipment uniformity | | | | | |

Note: Green shading indicates a U.S. advantage, red shading a U.S. disadvantage and blue shading a viability.

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL




## Secretary Perry's Request

*"... develop a white paper assessing opportunities to optimize the existing U.S. coal-fueled power plant fleet to ensure a reliable and resilient electricity system."*

## Key Questions to Address

*~ What actions can be undertaken to optimize the U.S. coal-fueled power plant fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric generation mix?*

*~ What unique benefits does coal provide?*

## Strategic Objective

*The existing U.S. coal fleet offers unique benefits in the nation's interests that must be valued or it will continue to erode.*

## Principal Findings

- The existing U.S. coal fleet possessed reliable and resilient attributes that support a stable, diverse energy portfolio.
- The coal fleet's ability to dispatch power when needed provides flexibility in meeting fluctuations in demand not met by intermittent renewable energy.
- Approximately 24% of U.S. coal generation capacity was retired between 2005 and 2017.
- Data on coal plant retirements do not capture all market dynamics prompting plants to retire ... may be underestimating loss of critical generating/grid stabilization resources.
- Coal generation capacity is likely to continue to decrease barring a proactive initiative to assess and compensate the existing fleet for its value.
- Greater transparency is needed in the comparative analysis of fuel resource options.
- Opportunities exist to streamline, re-evaluate and amend regulatory/legislative measures to enable the U.S. coal fleet to operate more efficiently.
- Wholesale electricity market reform is needed to equitably value resilience as well as reliability.
- Many technology options are available to improve the competitiveness of the existing U.S. coal fleet.

**Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type**

| Attribute | Coal | Natural Gas | Wind/Solar | Nuclear | Demand Response |
|---|---|---|---|---|---|
| Dispatchability | ✓ | ✓ | | ✓ | |
| Inertia | ✓ | ✓ | ✓(wind) | ✓ | |
| Frequency Response | ✓ | ✓ | ✓ | | |
| Contingency Reserves | ✓ | ✓ | | | ✓ |
| Reactive Power | ✓ | ✓ | | ✓ | |
| Ramp Capability | ✓ | ✓ | | | ✓ |
| Black Start | | ✓ | | | |
| Resource Availability | ✓ | ✓ | | ✓ | |
| On-Site Fuel Supply | ✓ | | | ✓ | ✓ |
| Reduced Exposure to Single Point of Disruption | ✓ | | ✓ | ✓ | ✓ |
| Price Stability | ✓ | | ✓ | ✓ | ✓ |

Source: PA Consulting

AMERICAN OVERSIGHT

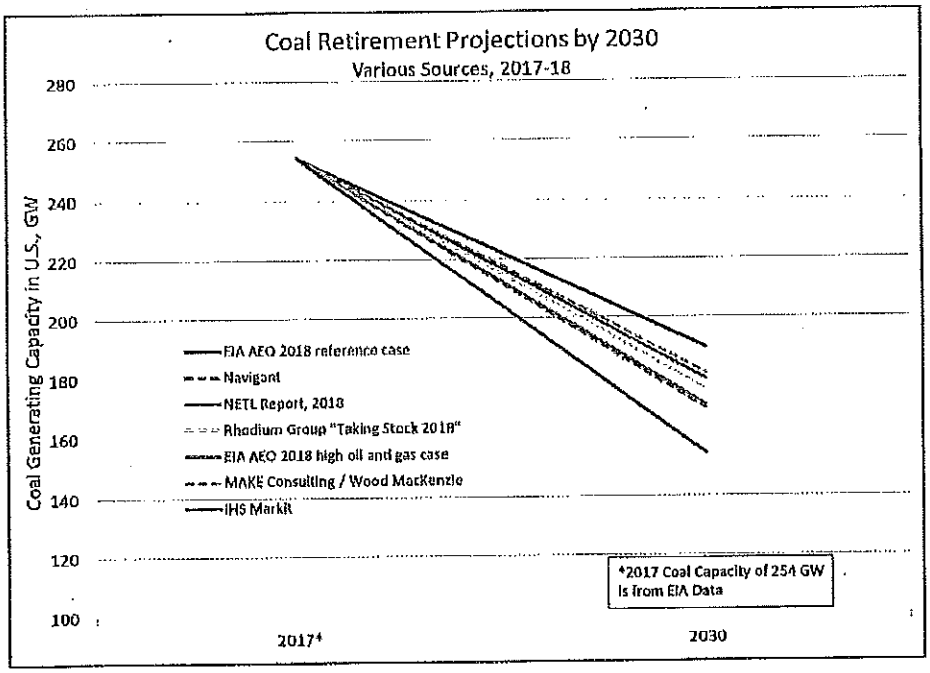
## Principal Recommendations

**ASSESS the value of the coal fleet.**
*Steps must be undertaken to ensure that the reliable and resilient attributes of U.S. coal generation are acknowledged and that the nation's existing coal fleet is equitably compensated for the services it provides. Firm, dispatchable power must remain a sustained part of the nation's fuel mix; targeted minimum levels for key fuel sources should be strongly considered.*

**SUPPORT efforts to retain continued operation of the existing coal fleet.**
*By ensuring compensation for all the attributes of the existing coal fleet, put an end to the precipitous retirement of dispatchable coal. This can provide an opportunity to assess future power demand scenarios and the ability of various energy resources to realistically, reliably and resiliently meet those needs. Economic and regulatory support are needed to stem the tide of plant retirements and ensure the sustainability of a diverse energy portfolio.*

**REFORM the regulatory environment.**
*The efficiency, environmental performance and cost-competitiveness of the existing U.S. coal fleet can be enhanced with reforms to various regulatory mandates. Environmentally permitted investments should be afforded the opportunity to recoup value over their useful life and enable the power grid to take full advantage of existing resources. Just compensation is warranted should that opportunity be denied.*

**RENEW investment in coal generation.**
*Optimizing existing coal fleet assets requires a targeted Research Development, Demonstration & Deployment (RDD&D) program focused on increasing the efficiency, flexibility and competitiveness of the fleet. Public funding and support mechanisms, complemented by public-private partnerships will ensure grid reliability, dispatch effectiveness and power system resilience.*




AMERICAN OVERSIGHT

## Actions to Optimize the Existing U.S. Coal Fleet

**ASSESS** the value of the coal fleet.

- Establish a uniform definition of grid resilience.
- Assess the fuel security of ISOs/RTOs.
- Establish quantitative metrics against which to evaluate grid resilience.
- Evaluate the experience of other nations regarding the value of firm, dispatchable power and challenges associated with intermittent renewable energy deployment.

**SUPPORT** efforts to retain continued operation of the existing coal fleet.

- Provide appropriate economic and regulatory incentives to stem the tide of plant retirements.
- Establish an environment that values and compensates diversity.
- Support mechanisms to immediately compensate the U.S. coal fleet for the essential services it provides.

**REFORM** the regulatory environment.

Policy Reforms

- Reform New Source Review rules.
- Reform the Public Utilities Regulatory Policies Act of 1978.
- Revise the 2015 Coal Combustion Residuals ruling.
- Support changes to Effluent Limitation Guidelines establishing wastewater treatment standards.
- Advance $CO_2$ storage laws and regulations on Federal and tribal lands.
- Engage EPA as it progresses the Affordable Clean Energy plan.

Market Reforms

- Support FERC capacity market reform initiatives.
- Support FERC initiatives to refine ISO/RTO price formation.
- Support FERC efforts to establish and enforce standards for essential reliability services.
- Support efforts by ISOs/RTOs to conduct assessments evaluating fuel security and resilience.

Tax Reforms

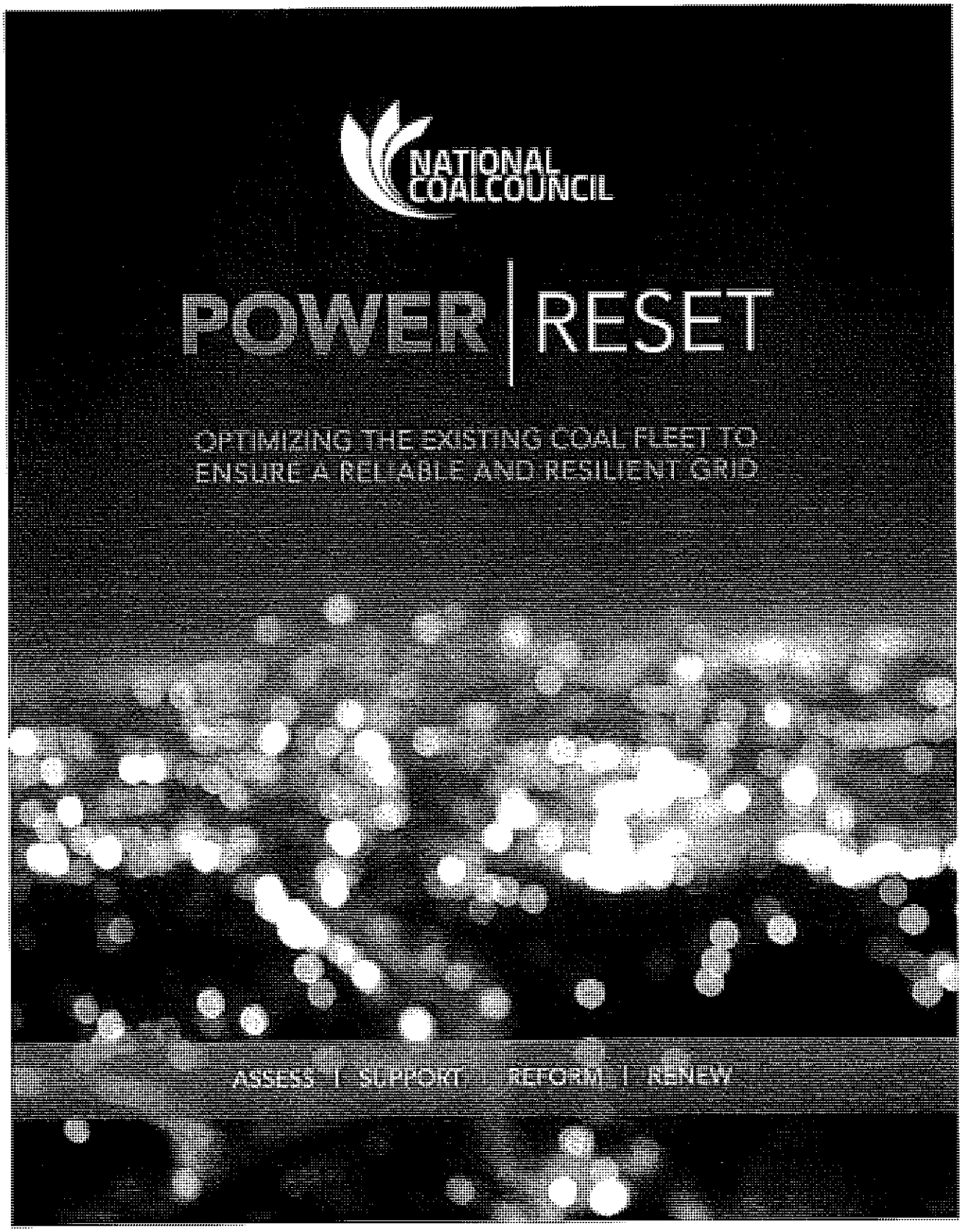
- Support legislative initiatives to provide temporary tax credits to cover a portion of plant O&M expenses.
- Support legislative initiatives that would complement and further incentivize utilization of the 45Q tax credit for existing coal plants, including Master Limited Partnerships and Private Activity Bonds.
- Support changes to the 48A tax credit.

**RENEW** investment in coal generation.

- Support the development and deployment of the following technologies.
  - Advanced coal mining and processing technologies.
  - Coal beneficiation technologies, including coal washing and upgrading.
  - Retrofitting and repowering technologies.
  - Energy storage technologies.
  - Advanced air emissions control system technologies.
  - Water effluent technologies.
  - Carbon capture technologies/projects, including retrofitted demonstrations at commercial scale.
  - Rare earth element extraction from coal and coal byproducts.
  - Advance new markets for coal such as coal conversion and carbon engineered products.
  - Technologies identified in the CURC-EPRI Roadmap that enhance the efficiency and cost-competitiveness of the existing coal fleet.
- Promote education and awareness about the water-energy nexus.
- Promote initiatives to enhance transparency about the inherent costs and benefits associated with all energy resources.

**https://www.nationalcoalcouncil.org/page-NCC-Studies.html**

AMERICAN OVERSIGHT




AMERICAN OVERSIGHT

AMERICAN OVERSIGHT




# Power Reset:

## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

*The National Coal Council is a Federal Advisory Committee established under the authority of the U.S. Department of Energy. Members from a diverse set of backgrounds and organizations are appointed to serve on the NCC by the Secretary of Energy to provide advice and guidance on general policy matters relating to coal and the coal industry. The findings and recommendations from this report reflect a consensus of the NCC membership, but do not necessarily represent the views of each NCC member individually or their respective organizations.*

AMERICAN OVERSIGHT

AMERICAN OVERSIGHT




# Power Reset
## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

**National Coal Council Leadership**
NCC Chair – Deck Slone, Arch Coal
NCC Vice Chair – Danny Gray, Charah Solutions
NCC CEO – Janet Gellici, National Coal Council

**Power Reset Report Co-Chairs**
Glenn Kellow, President & CEO, Peabody
Paul Sukut, CEO, Basin Electric Power Cooperative
Matt Rose, Executive Chairman, BNSF Railway

**Report Co-Chair Representatives**
Holly Krutka, Vice President Coal Generation & Emissions Technologies, Peabody
Matthew Greek, Sr. Vice President Research, Development & Technology
Basin Electric Power Cooperative
George Duggan, Vice President Coal Marketing, BNSF Railway

**Report Chapter Leads**
Paul Bailey, President Emeritus, American Coalition for Clean Coal Electricity
Michelle Bloodworth, President & CEO, American Coalition for Clean Coal Electricity
Janet Gellici, CEO, National Coal Council
Sheila Glesmann, Managing Director, Emission Strategies, Inc.
Matthew Greek, Sr. VP Research, Development & Technology, Basin Electric Power Coop
Holly Krutka, Vice President Coal Generation & Emissions Technologies, Peabody
Connie Senior, Vice President Technology, ADA-ES

**Principal Editors**
Holly Krutka, Peabody
Janet Gellici, National Coal Council

Library of Congress Catalog 2018912102

AMERICAN OVERSIGHT

**Contributing Authors, Managers & Reviewers**

Shannon Angielski, Carbon Utilization Research Council
Richard Axelbaum, Consortium for Clean Coal, Washington University (St. Louis)
Paul Bailey, American Coalition for Clean Coal Electricity
Shannon Maher Banaga, Esq., TECO Energy
Roger Bezdek, MISI
Lisa Bradley, Haley & Aldrich
Charlie Bullinger, Great River Energy
Frank Burke, Independent Consultant
Michelle Bloodworth, American Coalition for Clean Coal Electricity
Kipp Coddington, University of Wyoming
Don Collins, Western Research Institute
Dan Connell, Consol Energy
Katherine Dombrowski, Trimeric Corporation
Jeffrey Eppink, Enegis
Janet Gellici, National Coal Council
Sheila Glesmann, Emission Strategies, Inc.
Danny Gray, Charah Solutions
Matthew Greek, Basin Electric Power Cooperative
Mike Holmes, Lignite Energy Council
Susan Jackson, Santee Cooper
Kim Johnson, GEN2, LLC
Holly Krutka, Peabody
Heath Lovell, Alliance Coal
Shaun Mann, Tri-State Generation & Transmission
Charlie McNeil, NexGen Resources Corporation
Michael Nasi, Jackson Walker, LLP
Ron Oster, Peabody
Fred Palmer, The Heartland Institute
Christopher Romans, Mitsubishi Heavy Industries America
John Schultes, New Steel International
Connie Senior, ADA-ES
Sharon Sjostrom, P.E., Advanced Emissions Solutions
Charles Snavely, State of Kentucky
Scott Stallard, Atonix Digital

AMERICAN OVERSIGHT

**Report Subcommittee NCC Members**

Sy Ali, Clean Energy Consulting
Tom Alley, EPRI
Rich Axelbaum, Washington University (St. Louis) Consortium for Clean Coal Utilization
Charlie Bullinger, Great River Energy
Henry Cialone, EWI
Kipp Coddington, University of Wyoming School of Energy Resources
Don Collins, Western Research Institute
George Duggan, BNSF Railway
Mike Durham, Soap Creek Energy
Maohong Fan, University of Wyoming
John Fischer, Engineer Procure Construct LLC
Sheila Glesmann, Emission Strategies, Inc.
Matthew Greek, Basin Electric Power Cooperative
Mike Holmes, Lignite Energy Council
Susan Jackson, Santee Cooper
Kim Johnson, Gen2 LLC
Steve Krimsky, Jupiter Oxygen Company
Holly Krutka, Peabody
Heath Lovell, Alliance Coal
Emily Medine, EVA
Clark Moseley, Navajo Transitional Energy Company
Mike Nasi, Jackson Walker LLP
Chuck McConnell, Rice University Energy & Environment Initiative
Jerry Oliver, YCI Methanol One
Fred Palmer, The Heartland Institute
Christopher Romans, Mitsubishi Heavy Industries
Connie Senior, ADA-ES
John Schultes, New Steel International
Sharon Sjostrom, ADA-ES
Deck Slone, Arch Coal
Charles Snavely, State of Kentucky, Energy & Environmental Cabinet
Scott Stallard, Atonix (Black & Veatch Affiliate)
Sarah Wade, Wade LLC

**Report Subcommittee NCC Associates**

Paul Bailey, ACCCE
Roger Bezdek, MISI
Frank Burke, Independent Consultant
Todd Butler, TVA
Scott Castleberry, BNSF Railway
Dan Connell, CONSOL Energy
Randy Eminger, The Energy Policy Network
Jeffrey Eppink, Enegis
Harvey Ivey, Southern Company
Shaun Mann, Tri-State Generation & Transmission
Nancy Mohn, Independent Consultant
Ron Oster, Peabody

AMERICAN OVERSIGHT




## NCC Coal Policy Committee

**Chair - Holly Krutka**, Peabody
**Vice Chair - F. William Brownell**, Hunton Andrews Kurth LLP

**Tom Alley,** EPRI
**Shannon Angielski**
Carbon Utilization Research Council
**Duane Ankney,** State Senator – Montana
**Randall Atkins**, Ramaco Coal, LLC
**Richard Bajura,** West Virginia University
**Shannon Banaga**, TECO Energy Inc.
**Rick Boyd**, Dominion Energy
**Lisa Bradley**, Haley & Aldrich
**Brenda Brickhouse,** TVA
**John Cassady,** NRECA
**Joe Craft**, Alliance Coal, LLC
**Kipp Coddington**, University of Wyoming
**Brad Crabtree,** Great Plains Institute
**David Denton**, Susteon, Inc.
**Katherine Dombrowski**, Trimeric Corp
**John Duddy**, Axens North America
**George Duggan,** BNSF Railway
**Michael Durham**, Soap Creek Energy
**Ron Eller**, Tinuum Group LLC
**David Flannery**, Steptoe & Johnson, PPLC
**Danny Gray**, Charah Solutions
**Matthew Greek**, Basin Electric Power Coop.
**Mike Holmes,** Lignite Energy Council
**Susan Jackson**, Santee Cooper
**Dennis James,** North American Coal Corp
**Kim Johnson**, Gen2 LLC
**Michael Karmis,** Virginia Tech
**David Lawson,** Norfolk Southern Corp
**John Long**, Connemara Ltd.
**Heath Lovell**, Alliance Coal, LLC
**Len Marsico**, McGuireWoods, LLP
**Emily Medine,** Energy Ventures Analysis
**Charles McConnell,** Rice University
**Betsy Monseu**, American Coal Council
**Karen Obenshain**, Edison Electric Institute
**Jerry Oliver**, YCI Methanol One, Inc.
**Frederick Palmer**, The Heartland Institute
**Robert Purgert**, Energy Industries of Ohio
**Todd Savage,** Savage Services
**John Schultes,** New Steel International, Inc.
**Connie Senior,** ADA-ES, Inc.
**Sharon Sjostrom**, Advanced Emissions Solutions
**Deck Slone,** Arch Coal
**Michael Sorensen,** Tri-State G&T
**Scott Stallard**, Atonix Digital
**Scott Teel**, Southern Company Operations
**Matt Usher**, American Electric Power (AEP)
**Kemal Williamson,** Peabody
**Gregory Workman,** Dominion Energy Inc.

AMERICAN OVERSIGHT

## NCC Overview - 1984|2018

In the fall of 1984, Secretary of Energy Don Hodel announced the establishment of the National Coal Council (NCC). In creating the NCC, Secretary Hodel noted that "The Reagan Administration believes the time has come to give coal – our most abundant fossil fuel – the same voice within the federal government that has existed for petroleum for nearly four decades."

The Council was tasked to assist government and industry in determining ways to improve cooperation in areas of coal research, production, transportation, marketing and use. On that day in 1984, the Secretary named 23 individuals to serve on the Council, noting that these initial appointments indicate that "the Department intends to have a diverse spectrum of the highest caliber of individuals who are committed to improving the role coal can lay in both our Nation's and the world's energy future."

Throughout its nearly 35-year history, the NCC has maintained its focus on providing guidance to the Secretary of Energy on various aspects of the coal industry. NCC has retained its original charge to represent a diversity of perspectives through its varied membership and continues to welcome members with extensive experience and expertise related to coal.

In 1985, the NCC was incorporated as a 501c6 non-profit organization in the State of Virginia. Serving as an umbrella organization, NCC, Inc. manages the business aspects of running the Council. The leadership of the NCC serves as officers of NCC Inc. and members of the Council serve as NCC Inc. shareholders. The Executive Director of the Council is NCC Inc.'s Executive Vice President and Chief Operating Officer.

Today, the NCC continues to serve as an advisory group to the Secretary of Energy, chartered under the Federal Advisory Committee Act (FACA). The NCC provides advice and recommendations to the Secretary of Energy on general policy matters relating to coal and the coal industry.

The Council activities include providing the Secretary with advice on:

- Federal policy that directly or indirectly affects the production, marketing and use of coal;
- Plans, priorities and strategies to address more effectively the technological, regulatory and social impact of issues relating to coal production and use;
- The appropriate balance between various elements of Federal coal-related programs;
- Scientific and engineering aspects of coal technologies, including emerging coal conversion, utilization or environmental control concepts; and
- The progress of coal research and development.

The principal activity of the NCC is to prepare reports for the Secretary of Energy. The NCC's Coal Policy Committee develops prospective topics for the Secretary's consideration as potential subjects for NCC studies. During its nearly 35-year history, the NCC has prepared more than 35 studies for the Secretary, at no cost to the Department of Energy. All NCC studies are publicly available on the NCC website.

The NCC is a totally self-sustaining organization; it receives no funds from the Federal government. The activities and operations of the NCC are funded solely from member contributions, the investment of Council reserves and generous sponsors.

AMERICAN OVERSIGHT

AMERICAN OVERSIGHT




October 22, 2018

The Honorable Rick Perry
U.S. Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary:

On behalf of the members of the National Coal Council (NCC), I am pleased to submit to you, pursuant to your letter dated April 7th, 2018, the report "Power|Reset: Optimizing the Existing Coal Fleet to Ensure a Reliable and Resilient Grid." Consistent with your request, the report focuses on assessing policy, market and technological developments affecting the ability of existing coal-based power plants to uniquely enable a reliable and resilient electricity system. The report details coal's unique attributes as well as the drivers that have resulted in recent plant retirements. Specific actions are identified that can be undertaken to support and optimize the U.S. coal fleet so that it can continue to contribute to our nation's diverse electric generation mix.

The existing U.S. coal fleet offers unique benefits for the nation that must be valued or it will continue to erode. Accordingly, the NCC advocates a four-step approach summarized by four key words:

**ASSESS | SUPPORT | REFORM | RENEW**

**ASSESS** the value of the coal fleet.

Steps must be taken to ensure that the reliable and resilient attributes of U.S. coal generation are acknowledged and that the nation's existing coal fleet is equitably compensated for the services it provides. Firm, dispatchable power must remain a sustained part of the nation's fuel mix; targeted minimum levels for key fuel sources should be strongly considered.

**SUPPORT** efforts to retain continued operation of the existing coal fleet.

Ensuring compensation for all valuable attributes of the existing coal fleet can help put an end to the precipitous retirement of dispatchable coal. Support for sustained operation of U.S. coal plants can provide an opportunity to assess future power demand scenarios and the ability of various energy resources to realistically, reliably and resiliently meet those needs. Economic and regulatory support are needed to stem the tide of plant retirements and ensure the sustainability of a diverse energy portfolio.

AMERICAN OVERSIGHT

**REFORM** the regulatory environment.

The efficiency, environmental performance and cost-competitiveness of the existing U.S. coal fleet can be enhanced with reforms to various regulatory mandates. Environmentally permitted investments should be afforded the opportunity to recoup value over their useful life and enable the power grid to take full advantage of existing resources. Just compensation is warranted should that opportunity be denied.

**RENEW** investment in coal generation.

Optimizing existing coal fleet assets requires a targeted Research Development, Demonstration & Deployment (RDD&D) program focused on increasing the efficiency, flexibility and competitiveness of the fleet. Public funding and support mechanisms, complemented by public-private partnerships will ensure grid reliability, dispatch effectiveness and power system resilience.

Specific actionable items recommended to achieve these strategic objectives are detailed in Chapter 4 of the report. Tactical recommendations are framed to specify what must be done and why.

Thank you for the opportunity to prepare this report. The Council stands ready to address any questions you may have regarding its findings and recommendations.

Sincerely,

Deck L. Slone

Deck Slone
National Coal Council Chair 2018-2019

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# NCC REPORT ACCEPTANCE LETTER

May 24, 2018

The Honorable Rick Perry
U.S. Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary:

Thank you for your letter of April 7th, 2018 requesting that the National Coal Council (NCC) prepare a report assessing opportunities to optimize the existing U.S. coal generation fleet to ensure a reliable and resilient electricity system.

On behalf of the members of the NCC, we are pleased to accept your request. Activity has already begun on preparing the report which will address the following key questions:

- What actions can be taken to optimize the U.S. coal-fueled power plant fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric generation mix?
- What unique benefits does coal provide?

**Glenn Kellow**, President & CEO for Peabody, **Paul Sukut**, CEO and General Manager for Basin Electric Power Cooperative, and **Matt Rose**, Executive Chairman for Burlington Northern Santa Fe will serve as co-chairs for this report. We will have the report completed by the requested completion date of September 30th, 2018.

Thank you for your support of the National Coal Council. We welcome the opportunity to support your and President Trump's vision for our nation's energy future.

Sincerely,

Deck Slone
National Coal Council Chair

Greg Workman
National Coal Council Immediate Past Chair

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# Report Request from Energy Secretary Rick Perry

**The Secretary of Energy**
Washington, DC 20585

April 07, 2018

Mr. Greg Workman
Chairman, National Coal Council
Dominion Generation
120 Tredegar Street, DC3
Richmond, Virginia 23219

Dear Mr. Workman:

I am writing today to charge the National Coal Council (NCC) to develop a white paper assessing opportunities to optimize the existing U.S. coal-fueled power plant fleet to ensure a reliable and resilient electricity system.

The white paper should focus on drivers governing the evolution of the existing fleet and its attributes; outlooks on the future U.S. generation mix considering regional drivers, anticipated capacity additions, and retirements; characteristics of a reliable and resilient electricity system; and opportunities for the existing coal-fueled fleet to enhance the said characteristics. The white paper should examine policy, market, and technological aspects influencing the ability of coal-fueled plants to uniquely enable a reliable and resilient electricity system. The key questions for this white paper to address are "*What actions can be taken to optimize the U.S. coal-fueled power plant fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric generation mix, and what unique benefits does coal provide?*"

I ask that the white paper be completed no later than September 30, 2018.

Upon receiving this request and establishing your internal working groups, please advise me of your schedule for completing the white paper. The Department looks forward to working with you on this effort.

Sincerely,

Rick Perry

Rick Perry

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# Power Reset

## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

## Table of Contents


| | |
|---|---|
| Executive Summary | 1 |
| Chapter 1. Coal's Unique Role in the U.S. Energy Portfolio | 7 |
| Key Findings | 7 |
| Introduction | 7 |
| Hallmarks of Reliable and Resilient Energy Resources | 8 |
| The Value of Dispatchability and Flexibility | 9 |
| The Role of Diversity in a Resilient and Cost-Effective Energy Portfolio | 11 |
| Coal's Unique Energy, Economic and National Security Benefits | 12 |
| Coal's Role in Enhancing the Global Competitiveness of the U.S. | 13 |
| Today's U.S. Coal Fleet | 16 |
| Evolution of the Existing U.S. Coal Fleet: Historic Drivers | 18 |
| Sidebar – International Lessons Learned | 23 |
| Chapter 2. Outlook for Coal Generation | 24 |
| Key Findings | 24 |
| Introduction | 24 |
| Generation Mix Projections | 25 |
| Coal Generation Trajectory Basis | 27 |
| Economic Pressures | 29 |
| Unit Age | 30 |
| Staffing Issues | 31 |
| Regulations | 32 |
| Societal Pressures | 32 |
| Repercussions | 33 |
| Sidebar – High Impact – Low Frequency Events: Lessons Learned | 34 |


AMERICAN OVERSIGHT

Chapter 3. Measures to Optimize Diversity & Resiliency 36
Key Findings 36
Introduction 36
Policy Considerations 36
New Source Review 36
Tax Credits 38
Operation & Maintenance Tax Credits 38
45Q Implementation & Synergistic Policies to Enhance Implementation 39
48A Tax Credit 40
Land Use Policies Related to Carbon Storage and Utilization 41
Public Utility Regulatory Policies Act of 1978 Reform 43
Coal Combustion Residuals 44
Effluent Limitation Guidelines 45
Water-Energy Nexus 45
Wholesale Electricity Markets 47
Compensation in Wholesale Markets 48
FERC Action 49
Market Reforms 51
Valuing Fuel Security 53
The Role of Technology in Optimizing the U.S. Coal Fleet 55
Reducing Fuel Costs 55
Coal Upgrading 57
Improving Plant Efficiency – Retrofits & Repowering 59
Improving Flexibility 61
Reducing the Cost of Environmental Retrofits 63
Carbon Capture Opportunities 64
Rare Earth Elements 65
Boosting Revenue by Co-locating Other Coal Uses 66
RD&D Recommendations – CURC-EPRI Roadmap 66

Chapter 4. Conclusions & Recommendations 68
ASSESS – the value of the coal fleet. 69
SUPPORT – efforts to retain continued operation of the existing coal fleet. 69
REFORM – the regulatory environment. 70
RENEW – investment in coal generation. 71

AMERICAN OVERSIGHT

Appendices


1A. Definitions of Reliable and Resilient 73
1B. Reliable and Resilient Attributes 74
1C. Indirect Costs Associated with Intermittent Renewable Energy 77
1D. Renewable Energy and Dispatch 78
1E. Highlights of NERC Testimony on Performance of Electric Power System 87
1F. Perspectives on Energy Subsidies 88
1G. U.S. Coal Power Plants – Location, Coal Type and Generation 90
1H. Environmental Regulations Impacting Coal Generation 91
2A. ACCCE Retirement Tracker August 2018 94
2B. Coal Combustion Residuals Rule Overview 97
3A. Additional Perspectives – The Reality of the Shift Towards a New Power Generation Mix 102
3B. Additional Perspectives – Energy-Water Nexus 107


AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# Power Reset
## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

## FIGURES & TABLES

**Figures**


Figure 1. Average Days of Stockpiled Coal Burn
Figure 2. Levelized Cost of Electricity
Figure 3A. Residential Electricity Rates
Figure 3B. Non-residential Electricity Rates
Figure 4. Comparison of Electricity Costs for States in the Contiguous U.S.
Figure 5. State GDP Distribution for High and Low Coal Generation States
Figure 6. U.S. Coal Fleet Age (2017), Respective Average Generating Capacity Factor
Figure 7. Start-up Year & New Generation Capacity for Plants in Operation In 2005, 2010, 2015 and 2017
Figure 8. Net U.S. Electric Generation for 2006 to 2017
Figure 9. Natural Gas Futures Prices January 2006-March 2018
Figure 10. EIA Coal Generation Capacity
Figure 11. Net Electricity Generation from Select Fuels
Figure 12. EIA Annual Energy Outlook 2018 Coal Production by Region
Figure 13. Coal Generation Retirements Projected through 2030
Figure 14. Average Power Plant Operating Expenses for Major U.S. Investor-owned Units
Figure 15. Projected Unit Ages in 2040 without Further Unannounced Retirements
Figure 16. Location of Potential $CO_2$ Storage, Oil and Gas Production and Coal Power Plants
Figure 17. U.S. ISOs and RTOs
Figure 18. PJM ISO Territory
Figure 19. Resource Adequacy: Impact of Gas Availability & Coal Retirements
Figure 20. Productivity Trends for U.S. Longwall Mines, Non-longwall Underground Mines and PRB Surface Mines in Operation as of 2017
Figure 21. Bench-scale Mercury Removal Test Results Beneficiated Lignite & PRB Coals
Figure 22. Coal Power Plant Efficiency Audit Results
Figure 23. Charge and Discharge Mode for Coal Units Converted to Coal Peakers Using TES


**Tables**


Table 1. Reliability and Resilience Attributes
Table 2. Results of Dry Fining Process


AMERICAN OVERSIGHT




# Power Reset
## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid
## ACRONYMS

The U.S. ton is a short ton - 2000 pounds; the metric tonne is approximately 2,204.6 pounds. In this report, tonnages are not standardized. "Tons" refer to short tons and "tonnes" refers to metric tonnes.

| | |
|---|---|
| ACCCE | American Coalition of Clean Coal Electricity |
| ACEEE | American Council for Energy Efficient Economy |
| AEP | American Electric Power |
| ASC | Advanced Super Critical |
| AUSC | Advanced Ultra-Super Critical |
| Bbl | Barrel (oil) |
| BLM | Bureau of Land Management |
| BNSF | Burlington Northern Santa Fe Railway |
| BPS | Bulk Power System |
| CAISO | California Independent System Operator |
| CBM | Coal Bed Methane |
| CCR | Coal Combustion Residuals |
| CCUS | Carbon Capture Use/Utilization & Storage |
| CEQ | White House Council on Environmental Quality |
| $CO_2$ | Carbon Dioxide |
| CPP | Clean Power Plan |
| CRS | Congressional Research Service |
| CSP | Concentrated Solar Power |
| CT | Combustion Turbine |
| CURC | Carbon Utilization Research Council |
| DOE | U.S. Department of Energy |
| DOI | U.S. Department of Interior |
| DSIRE | Database of States Incentives for Renewables & Efficiency |
| EERS | Energy Efficiency Resource Standards |
| EIA | U.S. Energy Information Administration |
| ELG | Effluent Limitation Guidelines |
| EOR | Enhanced Oil Recovery |
| EPA | U.S. Environmental Protection Agency |
| EPRI | Electric Power Research Institute |
| ERCOT | Electric Reliability Council of Texas |
| ERS | Electric Reliability Services |
| FERC | Federal Energy Regulatory Commission |
| FGD | Flue Gas Desulfurization |
| GDP | Gross Domestic Product |
| GHG | Greenhouse Gas |
| GW | Gigawatt |
| HELE | High Efficiency Low Emissions |
| HG | Mercury |
| HILF | High Impact Low Frequency |
| IGCC | Integrated Gasification Combined Cycle |
| IOU | Investor Owned Utility |

AMERICAN OVERSIGHT

| | |
|---|---|
| IRE | Intermittent Renewable Energy |
| ISO | Independent System Operator |
| ITC | Investment Tax Credit |
| LCOE | Levelized Cost of Electricity |
| MATS | Mercury & Air Toxics Standards |
| MISO | Midwest Independent System Operator |
| MLA | Mineral Leasing Act |
| MLP | Master Limited Partnership |
| MOPR | Minimum Offer Price Rule |
| MSHA | Mine Safety & Health Administration |
| MW | Megawatt |
| NAM | National Association of Manufacturers |
| NARUC | National Association of Regulatory Utility Commissioners |
| NCC | National Coal Council |
| NCSL | National Council of State Legislators |
| NEPA | National Environmental Policy Act |
| NERC | North American Energy Regulatory Commission |
| NETL | National Energy Technology Laboratory |
| NGCC | Natural Gas Combined Cycle |
| NPDES | National Pollutant Discharge Elimination System |
| NRC | National Research Council |
| NSR | New Source Review |
| NYISO | New York Independent System Operator |
| O&M | Operations & Maintenance |
| OPEC | Organization of Petroleum Exporting Countries |
| PAB | Private Activity Bonds |
| PJM | Pennsylvania Jersey Maryland Interconnection |
| PM | Particulate Matter |
| PPA | Power Purchase Agreement |
| PTC | Production Tax Credit |
| PURPA | Public Utilities Regulatory Policies Act of 1978 |
| RCRA | Resource Conservation and Recovery Act |
| REE | Rare Earth Elements |
| ROW | Rights of Way |
| RPS | Renewable Portfolio Standard |
| RTO | Regional Transmission Organization |
| $SO_2$ | Sulfur Dioxide |
| SPP | Southwest Power Pool |
| USGS | U.S. Geological Survey |

AMERICAN OVERSIGHT

NATIONAL COALCOUNCIL

# Power|Reset

## Optimizing the Existing U.S. Coal Fleet to Ensure a Reliable and Resilient Power Grid

### Executive Summary

The nation's abundant, affordable and diverse domestic energy resources underpin its economic prosperity. The existing fleet of U.S. coal power plants is a critical component of the nation's energy portfolio, providing a foundation of reliable and resilient electricity in today's dynamic and rapidly evolving energy system.

The historic stability of the nation's energy system is, however, subject to disruptions arising from market distortions, regulation and regulatory uncertainty, which can increase the cost of electricity, threaten the reliability and resilience of the electric grid and hamper economic growth. These factors have most significantly and disproportionately impacted the nation's coal plants. As of August 12, 2018, more than 115,000 MW of coal generating capacity has retired, converted to another fuel or been slated for retirement by 2030. This represents nearly 40% of the U.S. coal fleet that was operating in 2010.

It's time for the U.S. to hit the "Power Reset" button to assess, support, reform and renew the role of the existing coal fleet in the U.S. power sector. ASSESS the value of the coal fleet. SUPPORT efforts to retain continued operation of the existing coal fleet. REFORM the regulatory environment. RENEW investment in coal generation.

### Coal's Unique Role in the U.S. Energy Portfolio

The U.S. power system benefits from an electric grid that is not only reliable, but resilient. A reliable electric system minimizes the likelihood of disruptive electricity outages, while a resilient system is designed with the understanding that outages will occur, is prepared to deal with them, is able to restore service quickly. Drawing lessons from the experience to improve performance in the future.

Among the attributes in which coal plants excel are fuel security/assurance, resource availability, on-site fuel supply, price stability and dispatchability. The ability to store fuel onsite and keep generation online is invaluable, especially during extreme manmade or natural disturbances. It is also valuable in supporting rapid recovery following power outages.

Resource availability is a concept that acknowledges the value associated with abundant fuel sources that are widely and readily accessible. Coal is used to generate electricity in 48 states; it provides at least half the electricity in 13 states and at least one quarter of the electricity in 24 states.



AMERICAN OVERSIGHT

Coal is mined in 25 states and can be shipped via a variety of transportation modes, including rail, truck and barge. Diversity in transportation methods makes coal supply less vulnerable to single points of disruption. Coal's price stability is evident in that it has maintained steady, non-volatile pricing over time and can be secured on a guaranteed basis.

Dispatchability, a key component of a reliable and resilient power system, is provided by baseload plants that can be scheduled in advance to meet predicted load and adjusted to increase or decrease output as required. Unlike dispatchable plants, wind and solar generation are intermittent renewable energy (IREs) sources and require backstop dispatchable generation in order to reliably maintain grid supply-demand balances.

Maintaining a diversified, dispatchable energy portfolio allows the U.S. to maintain low electricity rates which, in turn, enhance the nation's competitiveness in international markets and provides lower rates for the residential sector. The average U.S. residential consumer pays about one-half of the rate for the EU-28 countries, while the U.S. commercial and industrial rate is about 30% less than that of the EU-28.

## The U.S. Coal Fleet Today & Tomorrow

In 2005, approximately 325 GW of coal-based generating capacity was in operation in the U.S.; at the end of 2017, the U.S. existing coal fleet was made up of approximately 253 GW of generating capacity. Based on EIA data, 24% of the 2005 fleet had retired by 2017, representing approximately 79 GW. Since 2005, 27 GW of new coal-based generation has been added – although no additional plants are being built or planned today.

Coal power plant retirements since the turn of the century have been driven by numerous factors, including competitive pricing from other fuel resources, federal and state energy and environmental policies, declining electricity demand, inadequate funding for technology innovation, and societal pressures.

The U.S. power fleet is experiencing a period of rapid changes, making it challenging to forecast the outlook for power generation. Substantial year-over-year differences in projected future coal plant retirements are one indication of the uncertainty of these predictions. Some impacts on the generation fleet are cumulative. Reliability projections tend to underestimate the impact of current operating conditions on coal plants. The result of load cycling may be sharp increases in electric generation costs, much larger than anticipated in current economic projections. A rapid decline in baseload and dispatchable power due to an accelerated aging of the fleet could also severely reduce power supply reliability unless the overall system can be structured to absorb these changes, especially during extreme weather conditions.



AMERICAN OVERSIGHT

Several sources have estimated the future generation mix and the range of predictions is broad. From 65 to 100 GW of coal-based power is predicted to retire by 2030. EIA predicts that coal-based power will remain flat from 2030–2050. At the other end of the spectrum, Bloomberg NEF's New Energy Outlook 2018 predicts that by 2050 coal and nuclear will have almost disappeared from the electricity mix. Without appropriate mechanisms that value the diversity, reliability and resiliency provided by the existing coal fleet, the downside capacity predictions are much more likely than the EIA flat line projections.

## Policy Measures to Optimize Diversity & Resilience

Opportunities exist to streamline, re-evaluate, amend and implement regulatory and legislative measures that will enable the U.S. existing coal fleet to operate more efficiently and effectively. This report highlights reforms possible for New Source Review (NSR), land use policies related to carbon storage and utilization, the Public Utility Regulatory Policies Act of 1978, the Coal Combustion Residuals rule and Effluent Limitation Guidelines.

Various tax credits have been proposed or passed that could also provide support for the existing U.S. coal fleet. These include provisions for an Operations & Maintenance tax credit, reforms to the 48A Investment Tax Credit, and synergistic policies to enhance implementation of the recently passed 45Q tax credit revision, such as reforms to enhance eligibility for Private Activity Bonds (PABs) and Master Limited Partnerships (MLPs).

## Wholesale Electricity Market Reforms to Optimize Diversity & Resilience

The nation's seven independent system operators (ISOs) and regional transmission organizations (RTOs) were designed primarily to maintain competitive markets, low electricity prices and transmission reliability. They were not designed to ensure resilience, fuel diversity, or fuel security. Some 164,000 megawatts (MW) of coal-based generation — almost two-thirds of the fleet — are located in ISO/RTO footprints. As a consequence, ISO/RTO market policies affect the competitiveness and economic viability of the coal fleet.

For a number of reasons, including market policies, 45,000 MW of coal-based generating capacity in ISO/RTO regions have retired. An additional 17,000 MW in these regions are slated to retire over the period 2018 through 2020, of which 12,000 MW have been attributed to market conditions.

Various out-of-market subsidies and mandates can put dispatchable sources, such as coal, at a competitive disadvantage. For example, wind and solar benefit from a Federal Production Tax Credit (PTC) which, in the case of wind, allows this resource to bid into markets at a zero or negative cost that suppresses prices for other electricity resources and increases the need for load following and ramping from coal units.

In addition to tax benefits, 29 states have renewable portfolio standards (RPS) requiring that specific percentages of electricity sales come from renewables. These percentages range from 10% in Wisconsin to 100% in Hawaii.



AMERICAN OVERSIGHT

Other out-of-market subsidies disadvantage the coal fleet. Within PJM's 13-state footprint, 4 states — Northern Illinois, Pennsylvania, New Jersey and Ohio — have adopted or considered zero-emissions credit policies to subsidize existing nuclear plants. Subsidies allow renewable and nuclear generators to enter capacity auctions at prices below their operating costs, pushing down overall market prices and sometimes leading to power plant retirements.

There are many actions that could be undertaken by the Federal Energy Regulatory Commission (FERC) to ensure that the services provided by the U.S. fleet of coal-based power plants are appropriately valued. These include price formation reform, just and reasonable compensation for Essential Reliability Services, capacity market reforms, implementation of a forward resiliency market and demand response compensation reform.

## Technology Options to Optimize Diversity & Resilience

Maintaining the U.S. coal fleet is essential to ensure that the country can continue to provide reliable, resilient, affordable power through a diverse electric mix. To improve the competitiveness of the existing fleet there are many technology options available.

Upstream technologies that improve the efficiency and reduce the cost of mining, processing or transporting coal could play an important role in improving coal's competitiveness by reducing delivered fuel costs which account for a majority of a power plant's O&M cost. Opportunities for new technology implementation in coal mining and processing include automation and robotics, big data and advanced computing to improve mining productivity and efficiencies, fully remote mining technologies and advanced coal recovery and upgrading technologies.

There are material opportunities to further develop coal washing, beneficiating and upgrading. These technologies have the potential to reduce delivered fuel costs, reduce emissions, improve efficiency and reduce variable O&M costs at the power plant.

New technologies, such as high efficiency, low emissions (HELE) plants, offer dramatically improved efficiency and lower $CO_2$ emissions versus subcritical coal plants. For existing plants, regulatory uncertainties, especially around New Source Review, have limited the ability of owners to aggressively pursue energy efficiency improvement opportunities.

With the rapid increase in IRE generation, there is significant pressure on existing dispatchable coal resources to meet load and balance intermittency. While the existing coal fleet is presently able to deliver variable output to stabilize the grid, this comes at a cost in terms of lower plant efficiency, higher maintenance expenses and shorter life expectancy. There are some changes that can be made to power plants to improve their ability to cycle, but with the rapid growth of wind and solar installations, more aggressive measures are needed to ensure the stability of the grid.



AMERICAN OVERSIGHT

EXT-18-2615-G-000349

Today's coal-based electric generating units have successfully controlled emissions such as $SO_2$, $NO_x$, PM, mercury and other air toxics to meet regulatory requirements. There may be opportunities in the areas of air emissions and water effluent to reduce the technology cost associated with meeting environmental standards. There is a role for the Department of Energy to reduce the cost of new technologies and to promote innovative financing opportunities so that aging plants can adopt the new technologies that are being developed in the U.S. and around the world.

Finally, the development of alternative uses for coal may provide additional revenue streams and uses for existing coal plants that would enable the continued operation of these valuable assets. Rare earth elements (REE) are necessary materials in an incredible array of consumer goods, energy system components and military defense applications. However, the global production and entire value chain for rare earth elements is dominated by China; the U.S. is currently completely reliant on imports of these critical materials. Coal and coal by-products may provide an alternative source of REEs and a secondary source of revenue for coal mines and coal power plants.

Additionally, new markets for coal are being pursued worldwide for various applications such as coal conversion to synthetic oil, transportation fuels, hydrogen and industrial chemicals, as well as conversion of coal into advanced materials, such as carbon fibers. There may be potential opportunities to co-locate new technologies for processing coal at existing power plants and to enhance the use of U.S. coal in markets beyond those for power generation. In all instances, the coal conversion process itself requires electricity, providing the existing plant with a new dedicated customer.

## National Coal Council Recommendations

The existing U.S. coal fleet offers unique benefits for the nation that must be valued or it will continue to erode. Accordingly, the NCC advocates a four-step approach:

**ASSESS | SUPPORT | REFORM | RENEW**

**ASSESS** the value of the coal fleet.

Steps must be taken to ensure that the reliable and resilient attributes of U.S. coal generation are acknowledged and that the nation's existing coal fleet is equitably compensated for services it provides. Firm, dispatchable power must remain a sustained part of the nation's fuel mix; targeted minimum levels for key fuel sources should be strongly considered.



AMERICAN OVERSIGHT

EXT-18-2615-G-000350

**SUPPORT** efforts to retain continued operation of the existing coal fleet.

Ensuring compensation for all valuable attributes of the existing coal fleet can help put an end to the precipitous retirement of dispatchable coal. Support for sustained operation of U.S. coal plants can provide an opportunity to assess future power demand scenarios and the ability of various energy resources to realistically, reliably and resiliently meet those needs. Economic and regulatory support are needed to stem the tide of plant retirements and ensure the sustainability of a diverse energy portfolio.

**REFORM** the regulatory environment.

The efficiency, environmental performance and cost-competitiveness of the existing U.S. coal fleet can be enhanced with reforms to various regulatory mandates. Environmentally permitted investments should be afforded the opportunity to recoup value over their useful life and enable the power grid to take full advantage of existing resources. Just compensation is warranted should that opportunity be denied.

**RENEW** investment in coal generation.

Optimizing existing coal fleet assets requires a targeted Research Development, Demonstration & Deployment (RDD&D) program focused on increasing the efficiency, flexibility and competitiveness of the fleet. Public funding and support mechanisms, complemented by public-private partnerships will ensure grid reliability, dispatch effectiveness and power system resilience.

Specific tactics for achieving these objectives are detailed in Chapter 4 of this report.



AMERICAN OVERSIGHT

# Chapter 1: Coal's Unique Role in the U.S. Energy Portfolio

## Key Findings – Chapter 1

- **The existing U.S. coal fleet provides a reliable and resilient foundation in support of the nation's need for a stable, diversified energy portfolio.**
- **The coal fleet's ability to dispatch power when needed provides flexibility in meeting fluctuations in demand not met by intermittent renewable energy resources.**
- **U.S. national and economic security interests are supported by the abundance of domestic coal resources and the coal fleet's ability to provide affordable, reliable electricity for residential and industrial consumers. Low-cost electricity enhances the nation's competitiveness in international markets.**
- **Approximately 24% of U.S. coal generating capacity retired between 2005 and 2017.**
- **To ensure the U.S. continues to reap the benefits from its coal generation assets, we must ASSESS the value of the coal fleet, SUPPORT efforts to retain continued operation of the existing coal fleet, REFORM the regulatory environment and RENEW investment in coal generation.**

## Introduction

The nation's abundant, affordable and diverse domestic energy resources underpin its economic prosperity. The existing fleet of U.S. coal power plants is a critical component of the nation's energy portfolio, providing a foundation of reliable and resilient electricity in today's dynamic and rapidly evolving energy system.

The historic stability of the nation's energy system is, however, subject to disruptions arising from market distortions, regulation and regulatory uncertainty, which can increase the cost of electricity, threaten the reliability and resilience of the electric grid and hamper economic growth. These factors have most significantly and disproportionately impacted the nation's coal plants. As of August 12, 2018, more than 115,000 MW of coal generating capacity has retired, converted to another fuel or been slated for retirement by 2030. This represents nearly 40% of the U.S. coal fleet that was operating in 2010.[1]

It's time for the U.S. to hit the "Power Reset" button to assess, support, reform and renew the role of the existing coal fleet in the U.S. power sector. ASSESS the value of the coal fleet. SUPPORT efforts to retain continued operation of the existing coal fleet. REFORM the regulatory environment. RENEW investment in coal generation.

The National Coal Council's *Power Reset* report has been undertaken at Secretary Perry's request to identify measures that can be employed to optimize the U.S. coal generation fleet so it can continue to provide reliable, resilient, affordable power as part of a diverse electric mix. This chapter of the report details the unique benefits coal provides in fulfillment of these objectives.



AMERICAN OVERSIGHT

## Hallmarks of Reliable and Resilient Energy Resources

The U.S. power system benefits from an electric grid that is not only reliable, but resilient. There are many definitions of "reliable" and "resilient" (see Appendix 1A). In general, a reliable electric system minimizes the likelihood of disruptive electricity outages, while a resilient system is designed with the understanding that outages will occur, is prepared to deal with them, is able to restore service quickly and draws lessons from the experience to improve performance in the future.[ii]

A recent report noted that "A variety of attributes are required to maintain a reliable and resilient grid – no one technology can do it all."[iii] PJM has also examined various attributes that provide Essential Reliability Services (ERS), fuel assurance and flexibility as well as other associated characteristics (see Table 1).[iv] (See Appendix 1B for list and definition of reliable and resilient attributes.)

*Table 1. Reliability and Resilience Attributes*[v]

**Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type**

| Attribute | Coal | Natural Gas | Wind/Solar | Nuclear | Demand Response |
|---|---|---|---|---|---|
| Dispatchability | ✓ | ✓ | | ✓ | |
| Inertia | ✓ | ✓ | ✓(wind) | ✓ | |
| Frequency Response | ✓ | ✓ | ✓[3] | | |
| Contingency Reserves | ✓ | ✓ | | | ✓ |
| Reactive Power | ✓ | ✓ | | ✓ | |
| Ramp Capability | ✓ | ✓ | | | ✓ |
| Black Start | | ✓ | | | |
| Resource Availability | ✓ | ✓ | | ✓ | |
| On-Site Fuel Supply | ✓ | | | ✓ | ✓ |
| Reduced Exposure to Single Point of Disruption | ✓ | | ✓ | ✓ | ✓ |
| Price Stability | ✓ | | ✓ | ✓ | ✓ |

These assessments demonstrate that a diverse generation portfolio is critical to maintaining a reliable and resilient grid. Among the attributes in which coal plants excel are fuel security/assurance, resource availability, on-site fuel supply, price stability and dispatchability. The ability to store fuel onsite and keep generation online is invaluable, especially during regional storms or other disturbances. It is also valuable in supporting rapid recovery following power outages. As of May 2018, the average coal plant burning subbituminous coal had a stockpile that represented 78 days of burn. Over the last five years, the average subbituminous coal plant had a stockpile of 75 days; the average bituminous plant had a stockpile of 81 days of burn (see Figure 1).[vi]



AMERICAN OVERSIGHT

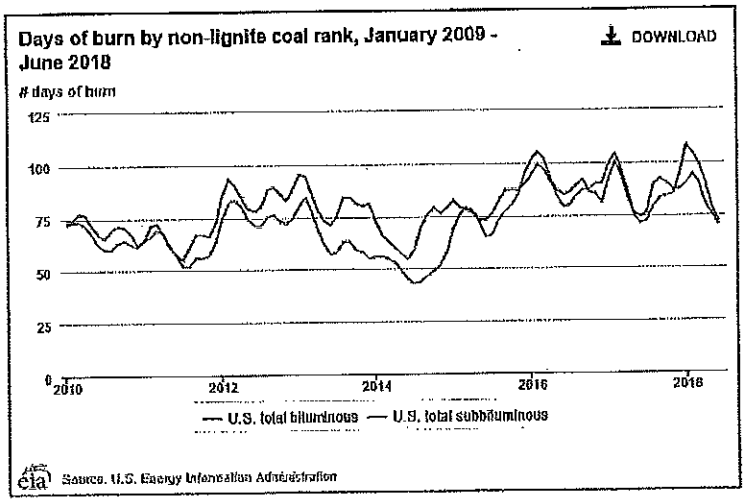



*Figure 1. Average Days of Stockpiled Coal Burn*

Resource availability is a concept that acknowledges the value associated with abundant fuel sources that are widely and readily accessible. Coal is used to generate electricity in 48 states; it provides at least half the electricity in 13 states and at least one quarter of the electricity in 24 states.[vii] Unlike natural gas, the vast majority of coal consumed in the U.S. — 86% in 2017[viii] — is for power generation; thus, coal plants do not compete with higher priority uses such as residential consumers, critical operations (schools/hospitals) and industrial uses.

Coal is mined in 25 states; 60% of coal is produced west of the Mississippi River and 40% is produced in the east.[ix] Coal can be shipped via a variety of transportation modes, including rail, truck and barge. Diversity in transportation methods makes coal supply less vulnerable to single points of disruption. In addition, there are many electric generating facilities that operate under a "mine-mouth" model with a dedicated coal mine adjacent to the power plant. Because of these factors, coal generation has low exposure to fuel supply chain issues.

Price stability acknowledges the value of a resource that has maintained steady, non-volatile pricing over time and can be secured on a guaranteed basis. The majority of coal is purchased through multi-year contracts for both the commodity and transportation.

## The Value of Dispatchability and Flexibility

Dispatchability is a key component of a reliable and resilient power system. Power from baseload plants can be scheduled in advance to meet predicted load and their dispatch can be adjusted to increase or decrease output as required, providing flexibility in meeting fluctuations in demand.[x] Unlike dispatchable plants, wind and solar generation are intermittent power sources and do not mitigate the need for added dispatchable generation (i.e., reserve power) in order to reliably maintain grid supply-demand balances, depending on the time of day and year and weather conditions.[xi]



AMERICAN OVERSIGHT

Issues associated with intermittent renewable energy (IRE) resources and their implications for fuel assurance and price stability were very apparent in the recent wind drought experienced in the United Kingdom. The UK *Daily Mail*[xii] reported that in early June 2018, Britain was "becalmed" when wind turbines across the nation were at a standstill as the wind "disappeared" for over a week causing a two-year low in electricity production. The lack of wind resulted in turbines generating less than 2% of the country's power, just after having produced 25% five days earlier. Bloomberg reported that the wind drought had increased day-ahead power prices to their highest level for that time of year for at least a decade.[xiii] This exemplifies the value of diversity, and the importance of maintaining dispatchable energy resources even as IREs are added to the grid.

However, there are also challenges associated with a diverse grid. For example, as more IREs are incorporated, many indirect system costs are passed on to dispatchable resources. (See Appendix 1C for a list of IRE indirect costs.) One of these cost elements is the "imposed costs" associated with using dispatchable generators to backstop non-dispatchable generators.[xiv] Dispatchable generators often cycle their output to match net load resulting from demand changes and shifts from non-dispatchable generators. Cycling coal-fueled units creates three major impacts:

- Lower net generation, resulting in a lower capacity factor and, generally, less revenue
- Lower total fuel consumption, but higher heat rate (i.e., lower efficiency), during lower power production periods, and
- Reduced plant life; in its work on this issue, EPRI has noted that "When operational cycling is introduced on a former baseload unit, the residual life can be greatly reduced to between 40% and 60% of the original design life because of the combined effects of creep and fatigue."[xv]

While the incremental costs involved in serving as an IRE-backstop are tangible and measurable, they are not currently compensated in most markets and, thus, can affect operators' decisions to prematurely retire a power plant and similarly reduce investment in plants' maintenance and longevity. As cycling increases, economic damage escalates, leading to premature retirement of dispatchable units (see Appendix 1D for a detailed assessment of renewable energy and dispatch). As discussed in Chapter 3, there are some technology improvements that would improve the ability of the existing coal fleet to support intermittent sources, while subjecting these coal plants to less damage and reducing incremental costs.



AMERICAN OVERSIGHT

## The Role of a Diversity in a Resilient and Cost-Effective Energy Portfolio

Resource diversity is critical to maintain a reliable and resilient grid, especially in the event of high impact-low frequency (HILF) events. Diversity helps maintain system reliability and the resiliency required to recover from HILF events.

In testimony in January 2018 before the U.S. Senate Energy & Natural Resources Committee[xvi] at a hearing on the performance of the grid under extreme weather conditions, the North American Electric Reliability Council (NERC) highlighted concerns with over-reliance on any one energy resource, noting reliance on a single fuel increases vulnerabilities (see Appendix 1E). More recently, in its 2018 Summer Reliability Assessment[xvii], NERC noted that "...the growing reliance on natural gas continues to raise BPS [Bulk Power System] reliability concerns." Texas ERCOT, for example, anticipates a Reserve Margin shortfall of 2,000 MW (13.75% Reference Margin Level vs. Anticipated Reserve Margin of 10.9%). One of the principal contributing factors in this shortfall is the largely premature retirement of 4,273 MW of coal capacity in January/February 2018.

In 2017, PJM released "PJM's Evolving Resource Mix and System Reliability," in which it concluded that PJM needs significant coal-fueled generation capacity to ensure a resilient grid, especially when encountering a HILF event.[xviii]

As U.S. Department of Energy (DOE) staff has noted, "Maintaining fuel diversity and security provides the best assurance for resilience. Premature retirements of fuel secure baseload generating stations reduces resilience to fuel supply disruptions."[xix]

The economic impacts of a less diversified energy portfolio were assessed by IHS Markit in its report on "Ensuring Resilient and Efficient Electricity Generation."[xx] Their analysis compared the existing U.S. electric supply portfolio in 2014–2016[1] with a projected less diverse supply portfolio[2], yielding the following conclusions:

- The current diversified portfolio lowers the cost of electricity production by about $114 billion/year and lowers the average retail price of electricity by 27% versus the less diversified portfolio. A 27% increase in retail power prices results in a decline of real U.S. GDP of 0.8%, equal to $158 billion (2016 chain-weighted dollars).
- The current diversified portfolio reduces the variability of monthly consumer electricity bills by about 22% versus the less diverse portfolio.
- A more diverse portfolio mitigates an additional economic cost of $75 billion/hour associated with more frequent power supply outages.
- Less efficient diversity involves a reduction of *one million jobs*.
- A less efficient diversity portfolio reduces real disposable income per household by about $845 (2016 dollars) annually.

[1] See Chapter 1, "Today's Coal Fleet" for a description of the current energy portfolio.
[2] See Chapter 2 for a discussion on future generation.



AMERICAN OVERSIGHT

EXT-18-2615-G-000356

## Coal's Unique Energy, Economic and National Security Benefits

*"Energy security is a roadmap to economic prosperity."*

*Secretary Rick Perry – CERA Week 2018*

Electricity drives the U.S. economy. Low electricity prices fuel the nation's commercial and manufacturing sectors and provide affordable power for all U.S. residents, including those with lower-incomes. U.S. power costs are partly driven by affordable fuel. In its 2018 Annual Energy Outlook, EIA projects that natural gas prices for electric power generation will increase by 34% in real terms between 2018 and 2040; coal prices are projected to increase 9% over the same period.[xxi]

Long-term national security is supported through continued use of domestic fuels. The remaining recoverable coal reserves in the U.S. are estimated to last more than 300 years at current usage rates. Furthermore, U.S. coal reserves are larger than remaining natural gas and oil resources based on energy content.[xxii]

To retain its competitive position in international markets and bolster a thriving economy at home, the U.S. needs to support policies and market approaches that ensure low electricity prices. In an assessment of the Levelized Cost of Electricity from Existing Generation Resources[xxiii], the Institute for Energy Research (IER) noted that "The lowest possible electricity rates will only be achieved by keeping existing generating resources in operation until their product becomes uneconomic – not relative to suppressed wholesale markets clearing prices but rather *relative to the levelized cost of electricity from new sources that would replace them.*" See Figure 2 for a comparison of the levelized cost of electricity of different electricity sources.[xxiv]

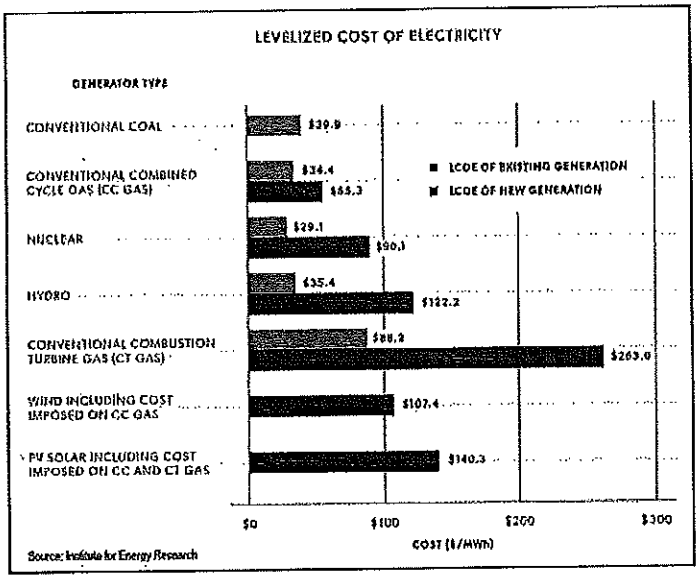



*Figure 2. Levelized Cost of Electricity*



AMERICAN OVERSIGHT

IER also points out that environmental regulations as well as subsidies and mandates for renewables are driving most new generating capacity construction, not new electricity demand (see Appendix 1F for additional information on subsidies). "FERC Form 1 and EIA 860 show that, in the absence of mandates, subsidies and regulatory compliance costs, the cost of electricity from almost all existing generation resources will remain less than the cost of electricity from their likely replacements for at least the next 10 to 20 years ... When electricity from an existing electric generating plant costs less to produce than the electricity from the new plant technology expected to be constructed to replace it – and yet we retire and replace the existing plant despite the higher future costs – ratepayers must expect the cost of future electricity to rise faster than it would have if we had instead kept the existing power plants in service."[xxv]

The net effect of adding capacity without an appropriate demand signal marginalizes the return on existing generation assets. This increasingly relegates coal assets to standby capacity in markets that clearly need, but do not appropriately value, this standby capacity.

## Coal's Role in Enhancing the Global Competitiveness of the U.S.

Maintaining a diversified, dispatchable energy portfolio allows the U.S. to maintain low electricity rates which, in turn, enhance the nation's competitiveness in international markets and provides lower rates for the residential sector.

The average U.S. residential consumer pays significantly less than its European counterpart, about one-half of the rate for the EU-28 countries and a third of that in the most expensive countries (see Figure 3A).[xxvi,xxvii] The composition of the residential European prices is broken out by the base price (without taxes and fees), other taxes and fees and VAT. The U.S. price is the composite price including all taxes and fees. In the two countries with the highest residential electricity prices, Germany and Denmark, over half of the cost to the consumer consists of taxes designed to subsidize renewable energy resources and meet other energy policy objectives.

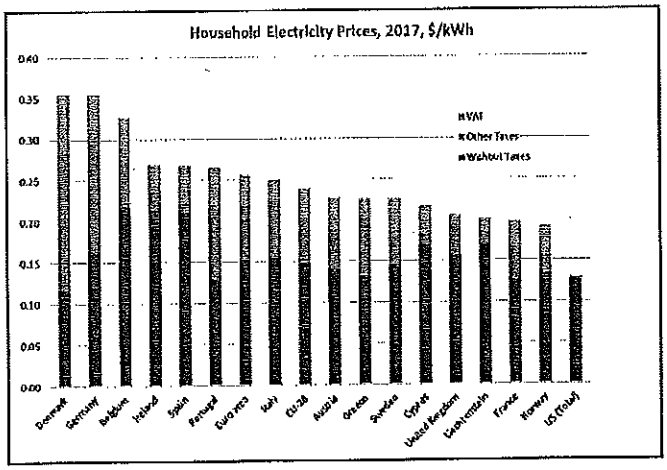



*Figure 3A. Residential Electricity Rates*



AMERICAN OVERSIGHT

The U.S. non-residential rate (commercial and industrial) is about 30% less than the EU-28 aggregate, and about half that of the highest price countries (Germany and Italy), for which 40–50% of the total rate consists of taxes and other levies (see Figure 3B). [xxviii,xxix]

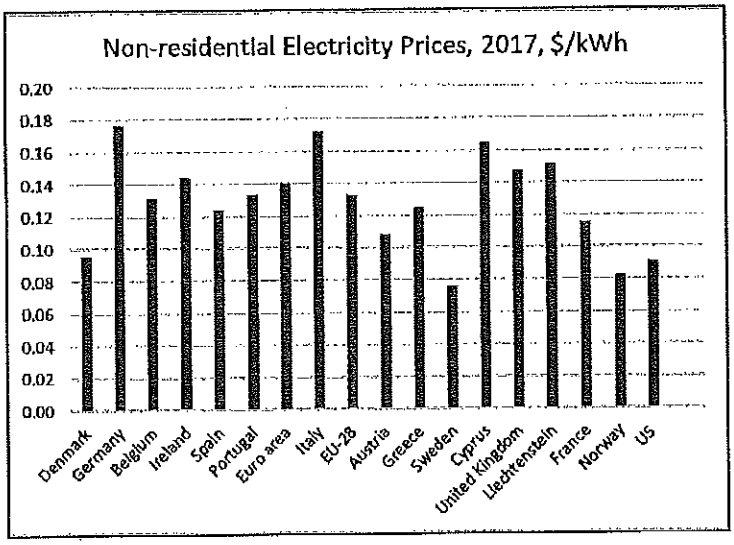



*Figure 3B. Non-residential Electricity Rates*

It is instructive to examine the lessons learned from other nations that have undertaken efforts to transition away from baseload power in pursuit of aggressively deploying renewable energy sources (see sidebar article on International Lessons Learned on page 19). The repercussions of these policies have been significant for both citizens and businesses operating in these countries.

In a comparison of U.S. and European Union (EU) approaches to energy policy, Robert Bryce with the Manhattan Institute[xxx] notes that as a result of "policy differences, electricity prices in Europe are far higher than in the U.S. for both residential and commercial consumers ... The average U.S. household pays about a third of what the same electricity costs in Germany and European steelmakers now pay twice as much for their electricity as do U.S. manufacturers."

Bryce estimates the net effect of the U.S. adopting a renewable energy goal akin to that of the EU would increase our nation's monthly residential bills by about 29%. He concludes that "For decades, the U.S. economy has prospered thanks to cheap, abundant, reliable supplies of energy. Domestic policymakers should focus on ensuring that this remains the case. Therefore, they should not follow the EU's lead. Instead, they should eliminate renewable-energy subsidies and remove excessive restrictions on coal electricity generation plants."



AMERICAN OVERSIGHT

The impact on electricity cost of varying U.S. state energy policy can also be observed. For example, comparing the state-specific price paid for electricity with the fraction of coal-based generation reveals that states that generate little or no coal-based electricity pay the highest electricity prices, with the exception of Oregon and Idaho where hydroelectric represents more than 60% of generation. Thirteen (13) states generate more than 50% coal-based electricity, and nine (9) states generate less than 2% coal-based electricity. The average price paid for electricity in these states are compared in Figure 4. On average, the low coal-based generation states pay 160% of the price of electricity compared to the high coal generation states.

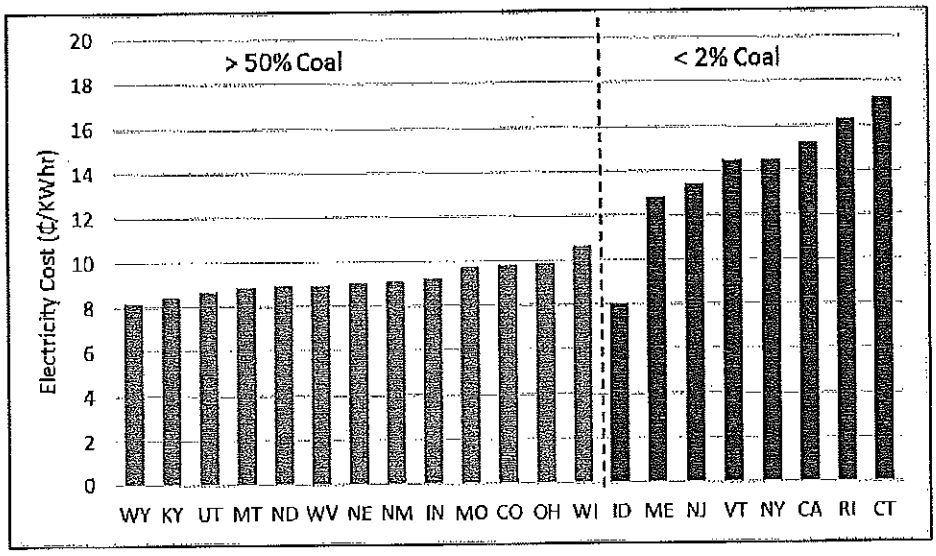



*Figure 4. Comparison of Electricity Costs for States in the Contiguous U.S. Using the Highest and Lowest Fractions of Coal-based Electricity*

States that rely heavily on coal for electricity generation also produce more goods as a fraction of overall state GDP. Figure 5 compares the fraction of state GDP for goods or services for states who generate 50% or more electricity from coal, and those that generate less than 10% of electricity from coal.[xxxi] As shown, the GDP in high coal-generation states is more than twice as reliant on goods produced compared to low coal generation states. In the low coal generation states, services are a more important component of state GDP, representing over 70% of state GDP.



AMERICAN OVERSIGHT

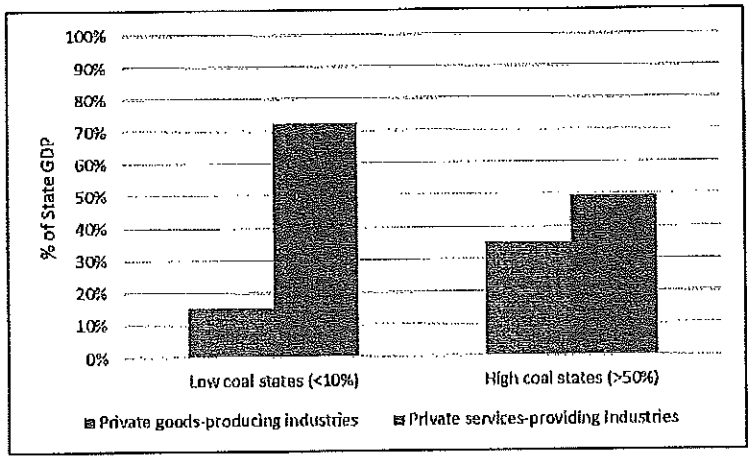



*Figure 5. State GDP Distribution for High and Low Coal Generation States*

## Today's U.S. Coal Fleet

At the end of 2017, the U.S. existing coal fleet that provides the many outlined benefits was made up of approximately 253 GW of generating capacity, with a 2017 net generation of 1,184,681,507 MWh, representing nominally 53% of the available generating capacity. The capacity-weighted average age of these plants was 40 years. The age distribution by generating capacity and average operating capacity factor, or MWh produced compared to the total possible MWh based on plant generating capacity, for plants operating in 2017 is shown in Figure 6.[xxxii] The capacity factor for the newest plants is over 70%, compared to 50% or less for plants more than 46 years old indicating that, in general, newer plants operate more often than older plants.

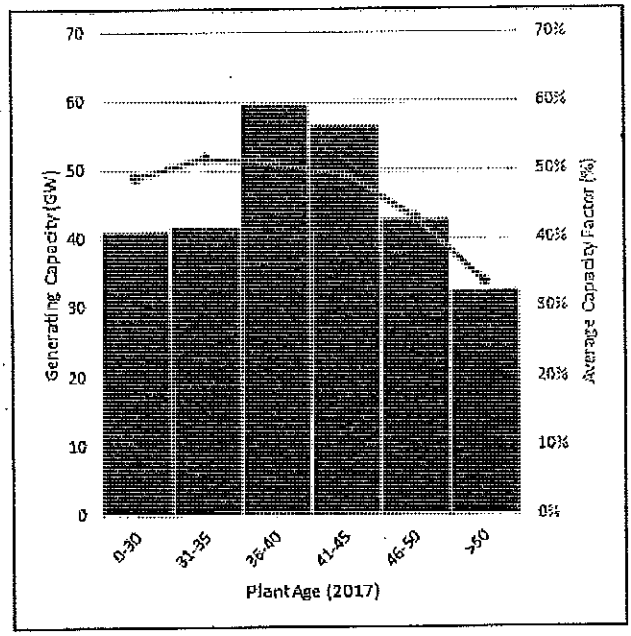



*Figure 6. U.S. Coal Fleet Age in 2017 and Respective Average Generating Capacity Factor*



AMERICAN OVERSIGHT

In 2005, approximately 325 GW of coal-based generating capacity was in operation in the U.S. Based on EIA data, 51% of these plants had retired by 2017, representing approximately 79 GW, or 24% of the 2005 generating capacity. The average size of a unit in the U.S. fleet was 231 MW in 2005 and the average size of the units retired since then was 109 MW. Since 2005, 27 GW of new coal-based generation has been added – although no additional plants are being built or planned today – and the average size of operating units in 2017 was 364 MW. Thus, from 2005 to 2017, many smaller and older plants retired, as shown in Figure 7.[xxxiii] Information on the location and size of coal-based power plants in operation in the contiguous U.S. at the beginning of 2018 is included in Appendix 1G.

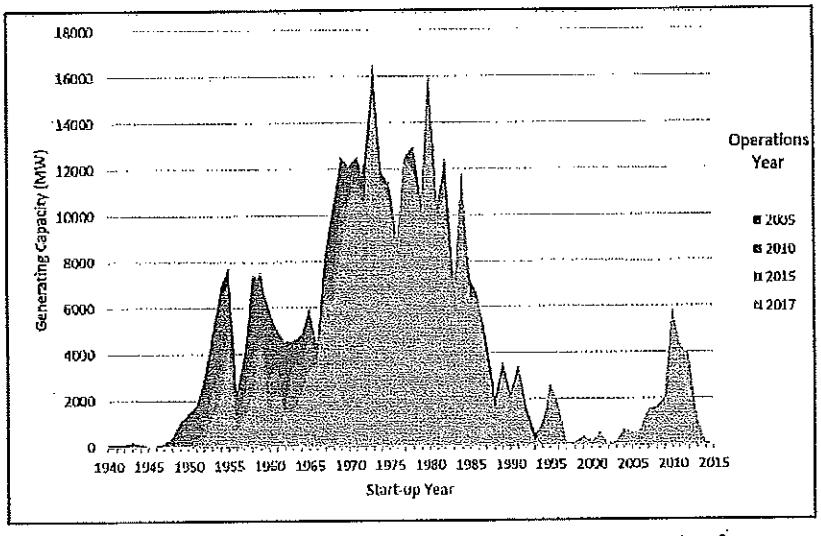



*Figure 7. Start-up Year and New Generating Capacity for Plants Still in Operation in 2005, 2010, 2015 and 2017*

The U.S. coal-based electricity generating units that retired between 2005 and 2017 have largely been replaced by alternatives – mostly gas-fired generation with some IREs, the effects of which are shown in the net generation by fuel source depicted in Figure 8. This also corresponds to a decrease in average cost of natural gas-fired generation over the same period.



AMERICAN OVERSIGHT

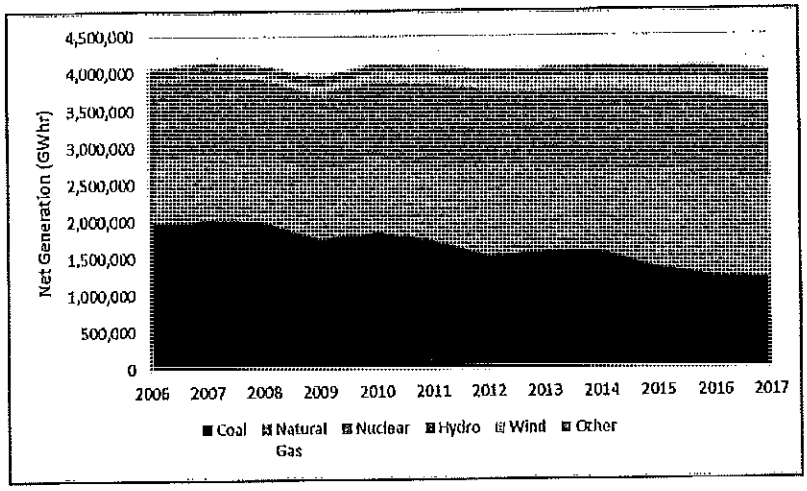



*Figure 8. Net U.S. Electric Generation for 2006 to 2017*

## Evolution of the Existing U.S. Coal Fleet: Historic Drivers

It is instructive to examine the evolution of today's coal fleet as a basis for defining the best path forward. Coal power plant retirements since the turn of the century have been driven by numerous factors, including competitive pricing from other fuel resources, federal and state energy and environmental policies, declining electricity demand, inadequate funding for technology innovation, and societal pressures.

Cost Considerations

*Natural Gas Prices.* In addition to regulations such as MATS, new economics associated with natural gas has been one of the most significant triggers for coal generating unit retirements. This change in economics began with the emergence of an unprecedented increase in natural gas supplies within the U.S. resulting from the development of shale gas reserves. The decline in natural gas prices began in 2009 because of both the 2008 economic recession and associated decreased demand for generation and also the increase in natural gas supply.[xxxiv]

The shale boom emerged around 2006–2007 when hydraulic fracturing practices made previously inaccessible gas sources economically and technically recoverable. With this abundance, natural gas prices fell from an average of over $7/MMBtu from 2003–2008 to an average of $3.20/MMBtu in the period from 2012–2016. Typically, natural gas prices at $3/MMBtu can result in simple cycle natural gas combustion turbine (CT) units and the more efficient natural gas combined cycle (NGCC) units being dispatched ahead of some coal units, possibly even some highly efficient supercritical coal-based units. A price of $4/MMBtu will cause CT and NGCC to be dispatched ahead of some subcritical and older coal-based units. Thus, the decline in natural gas prices triggered retirement of smaller, older coal plants and as natural gas prices remained in this range, retirements continue. With abundant supplies from the Marcellus and Utica shales, along with construction of natural gas pipelines, natural gas price volatility has reduced (see Figure 9).[xxxv]



AMERICAN OVERSIGHT

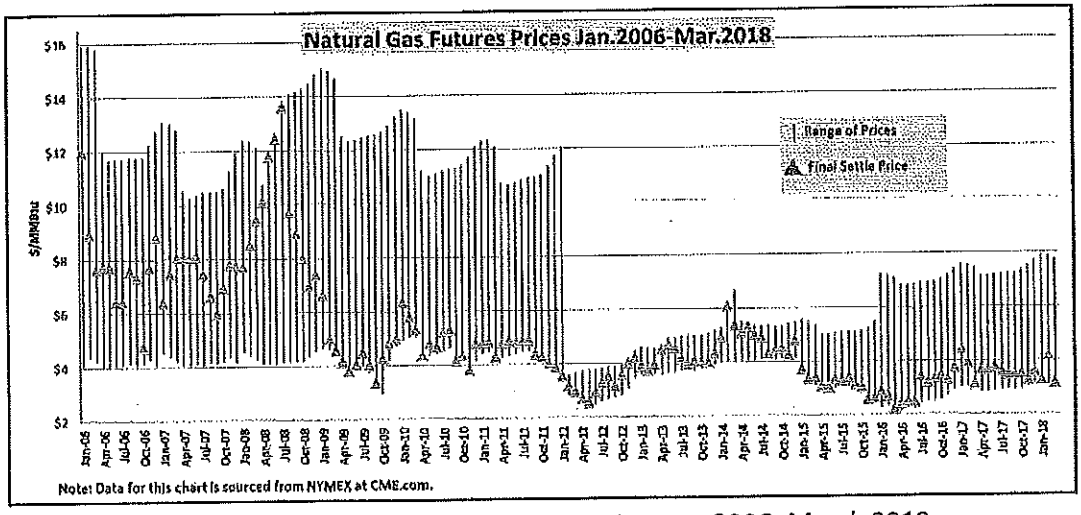



*Figure 9. Natural Gas Futures Prices January 2006–March 2018*

*Renewable Energy Pricing - Impacts of PTC and ITC.* As reported in the National Coal Council's (NCC) report on Policy Parity,[xxxvi] subsidies, mandates and other policies for IREs have tilted the playing field for wind and solar energy, competitively disadvantaging existing coal generation. Reports from EIA[xxxvii] and the Congressional Research Service[xxxviii] (CRS) confirm the significant disparity between energy subsidies for renewables and for fossil fuels. The EIA report documents that between 2010 and 2016, renewable energy's share of energy-specific subsidies and support increased from 42% to 45%; coal's share for the same period increased from 2% to 8%. Earlier EIA assessments noted that in 2013, renewables received more than 12 times the subsidies as received for coal — $13.277 billion for renewables and just $1.085 billion for coal.

Financial support available to renewable energy suppliers under the Internal Revenue Code Section 45 Production Tax Credit (PTC) and Section 48 Investment Tax Credit (ITC) has not only provided revenue to IREs, but has reduced revenue to fossil and other generators, many of whom have left the market in recent years as a result. Later sections of this report detail the potential fossil generation benefits associated with recently enacted revisions to 45Q and 48A tax credits, as well as the need for transparency in electricity markets that fully accounts for the all-in cost of energy resources generating electricity that consumers are buying.

In fact, the value of the renewable energy PTC artificially lowers the variable costs of wind generation that is bid into the market relative to non-subsidized generation. This disparity has enabled renewable energy producers to sell into energy markets at low – and at times even negative – prices, which has the effect of reducing market prices for non-subsidized fuels, such as fossil and nuclear (see Chapter 3 for a more detailed discussion of impacts of renewable energy PTC/ITC on wholesale electricity markets).



AMERICAN OVERSIGHT

Regulation

*Environmental Regulations.* Existing and proposed environmental regulations with compliance deadlines between the years 2010–2017 factored into retirement decisions for coal-based generating units that were already economically marginalized due to the competition from low natural gas prices and mandated deployment of renewable technologies. Capital investments required to meet regulatory requirements were best made on newer and more efficient coal-based power plants leaving the already marginalized, and typically older, coal-based units likely to retire. According to estimates by industry organizations, of the more than 115,000 MW of retired, converting or planned retirements, nearly 77,000 MW are explicitly attributed to U.S. Environmental Protection Agency (EPA) existing and proposed regulations/policies (from 2010–2030).[xxxix] In its Staff Report for Secretary Perry, DOE noted that 48,800 MW of coal-based generation capacity retired from 2002–2016, when environmental regulations were forcing a decision to either retire or upgrade.[xl]

Key regulations that drove, or are believed to be driving, retirements are detailed in Appendix 1H. The regulation that resulted in the greatest number of retirements in one year was the Mercury Air Toxics Standards (MATS) Rule. Other regulations, including those that could be even more costly to meet, had later implementation deadlines so if the MATS Rule had not already triggered closure, these regulations might have.

In 2015, the same year for which MATS compliance was required, EPA finalized the Clean Power Plan (CPP). Although CPP was later stayed by the U.S. Supreme Court, the ensuing regulatory uncertainty was likely a consideration when weighing retirement decisions. The prospect of future $CO_2$ regulation, and regulatory uncertainty in general, may also have impacted consideration of investments in new and existing coal plants as there is little certainty that investments will get a fair opportunity to be earned back. There is an argument to be made that environmentally permitted investments should be given the opportunity to earn their value over their useful life or just compensation should be due if that opportunity is denied.

*State Energy Policies.* States have exercised considerable control over the electricity market through legislation that affects how and how much electricity is generated. Among the most significant of these are Energy Efficiency Resource Standards (EERS) and Renewal Portfolio Standards (RPS), which grew in prominence from about the year 2000. A comprehensive source of state-by-state information on EERS and RPS programs is the "Database of States Incentives for Renewables and Efficiency" (DSIRE).[xli]



AMERICAN OVERSIGHT

Energy Efficiency Resource Standards

An Energy Efficiency Resource Standard (EERS) is a mandatory requirement imposed by a state on electricity, and in some cases natural gas utilities, to reduce end use consumption by specific amounts by specific dates. Twenty-six states have implemented EERS programs. In addition, most other states have some form of electricity efficiency programs implemented by the utilities or by the state on a voluntary basis. The majority of the EERS programs became effective between 2000 and 2010. The American Council for an Energy-Efficient Economy (ACEEE) estimated that total electricity savings in 2014 was approximately 180 billion kWh[xlii] or 4.4% of the total U.S. electricity consumption in that year. The energy savings in 2016, the most recent reporting year, was approximately 230 billion kWh, or about 5.5% of total U.S. demand.

Renewable Portfolio Standards

An RPS is a state law requiring electric utilities to sell a certain portion of their electricity from or maintain a certain portion of the generating capacity as renewable sources. According to the National Council of State Legislatures (NCSL), 29 states had enacted RPS legislation by August 2017. The NCSL reports that "Iowa was the first state to establish an RPS and Hawaii has the most aggressive RPS. In many states, standards are measured by percentages of retail electric sales. Iowa and Texas, however, require specific amounts of renewable energy capacity rather than percentages and Kansas requires a percentage of peak demand. Twenty (20) states and Washington, D.C., have percentage-based cost caps in their RPS bills to limit increases in ratepayers' bills. One state caps RPS gross procurement costs." [xliii]

Technology Considerations

Through the Office of Fossil Energy, DOE at one time had a dedicated program – "Innovations for Existing Plants" – that supported R&D targeted at existing coal units. Technologies supported in the program included mercury and air toxics control technologies, particulate matter control technologies, water cooling and other types of water management technologies, as well as coal combustion byproduct processes. In 2009, DOE refocused the program exclusively on carbon capture retrofits for existing coal plants, phasing out all other existing plant R&D. Eventually, this program was renamed the "Carbon Capture" program.

Since then, every CURC-EPRI Roadmap[xliv] that has been published has identified the need for a dedicated existing plant program to support R&D on innovative techniques for heat rate improvement, water management as it relates to existing units specifically, and improvement of both performance and operations of criteria emissions control systems that are operating in a much more flexible mode than originally designed.[xlv] However, no funding has been made available for R&D specific to the existing fleet over nearly a decade, at a time when increasing amounts of renewables and competition with natural gas are forcing existing coal units to ramp up and down, significantly contributing to the wear and tear of those units that are designed to run in a steady baseload state.



AMERICAN OVERSIGHT

The additional operation and maintenance (O&M) costs associated with operating baseload plants in a cycling mode has influenced operators' decisions to retire coal plants. Insufficient R&D funding and a lack of a dedicated DOE Existing Plants R&D program for development of technologies to support existing fleet operations in a flexible mode have also contributed to coal plant retirements. Technology options to reduce the impact of cycling, including heat and energy storage, are included in Chapter 3.

Societal Considerations

Public perception of coal has shifted dramatically over the past few decades as evinced by:

- Imposition of national and state policies in opposition to the development of coal production, transportation and consumption facilities
- Shareholder and advocate demands for divestiture of coal-related stock holdings
- National and local environmental NGO campaigns deriding coal and advocating for the closure of coal facilities
- Climate change advocate initiatives targeting coal as the primary culprit
- State government and advocacy group opposition to development of coal export infrastructure projects[3]
- International development bank and government reluctance to support deployment of advanced coal technologies

Also, as detailed in Chapter 2 (Societal Pressures), there has arisen over the last few years a belief that renewables can reliably and cheaply provide 100% of U.S. electricity needs. This perception has fostered public pressure on policymakers and companies to support the rapid growth of IREs. There has also been a lack of valuation of the importance of diversity and the role played by the existing coal fleet, which has facilitated the retirement of coal power plants. Improved transparency about the inherent costs and benefits associated with all energy resources and the value of a diverse energy mix will provide a more reasoned approach to energy decision and policy making.

## Conclusion

A mere 50 years ago, coal was lauded as a champion for providing an affordable, secure domestic solution to combat OPEC's energy stranglehold. In responding to that call, U.S. coal producers, transporters and power generators established a world-class network to provide the U.S. with affordable, reliable electric power. Today, that coal network continues to demonstrate its value by enhancing the reliability and resilience of our nation's energy grid, even as the grid is rapidly changing.

[3] See the National Coal Council's report on "Advancing U.S. Coal Exports" (September 2018) for a discussion of initiatives in opposition to coal export port developments and financial community proscriptions against international coal facility development, www.nationalcoalcouncil.org.



AMERICAN OVERSIGHT

## International Lessons Learned

The headlines are revealing:

- "Germany shows how shifting to renewable energy can backfire"[xlvi]
- "German household power prices at record high"[xlvii]
- "Why South Australia's blackouts are a problem for us all"[xlviii]
- "South Australia power prices to rise to highest in the world"[xlix]
- "Ontario household electricity prices to rise 52 percent from 2017 to 2035"[l]
- "Ontario's power-price crisis – how did happen and who got hurt"[li]

The U.S. can learn from the hard lessons of other countries as they consider the importance of baseload power supplies and sustained utilization of existing utility assets. Other regions and countries, such as Germany, Australia and the province of Ontario (Canada), have experienced the negative impacts of aggressively pursuing renewable power at the expense of coal-based baseload systems. Affordable, reliable and resilient electric supply is not only the cornerstone of manufacturing and the economy, it is critical to low income families. Higher energy costs result in these families having to expend a larger percentage of their household budget on electricity, reducing funds available for other household essentials such as food and medicine.

Germany has been one of the world leaders in the pursuit of increased renewable energy at the expense of baseload coal power and nuclear power. Germany has ramped up renewable power for over two decades and currently generates about 40% of its electricity from renewables. As a result, the country has some of the highest electricity costs in the world and residents are also paying additional taxes to cover the buildup of renewable power. Recently, Germany has begun reintroducing coal generation to its electricity portfolio in order to deal with the intermittency of their renewable power supply.

Similarly, Australia has incurred power price increases and outages over recent years as a number of coal plants have shut down. This has been especially true in South Australia where renewables provide around 40% of the region's power. While outages can be attributed to many factors, increased intermittent renewables and coal plant retirements are a large part of the equation.

In North America over the past decade, Ontario Canada has transitioned to more renewables, retiring coal-based power plants and relying on nuclear power for baseload energy. During this transition period, power prices in Ontario have increased roughly four times the rate of inflation and can vary broadly over time depending on the availability of renewable generation. Again, we see that energy policy and retirement of existing coal-based utility assets can have significant consequences on energy pricing.

These international examples demonstrate the need for well thought out energy policies that maintain coal-based generation in the mix. This will prevent negative impacts on our industry, economy and low-income households.



AMERICAN OVERSIGHT

# Chapter 2: Outlook for Coal Generation

## Key Findings – Chapter 2

- **The U.S. power fleet is experiencing significant and rapid changes, presenting challenges to forecasting the outlook for power generation. Assessing the future of the nation's generation portfolio will require evaluating many varied risk factors taken into consideration on a cumulative basis.**
- **Data on currently announced coal plant retirements do not capture all of the market dynamics that are prompting plants to retire and may be underestimating the loss of these critical generating and grid stabilization resources.**
- **Regulations, staffing constraints and societal pressures will continue to hamper efforts to preserve and optimize the existing coal fleet.**
- **Coal-based generating capacity is likely to continue to decrease barring a proactive initiative to assess and take action to compensate the existing coal fleet for the value it provides in maintaining the diversity and stability of the U.S. power grid.**
- **There is a need for greater transparency in the comparative analysis of fuel resource options.**

## Introduction

The U.S. power fleet is experiencing a period of rapid changes, which is making it challenging to forecast the outlook for power generation. Substantial year-over-year differences in projected future coal plant retirements are one indication of the uncertainty of these predictions. Many influences are aligning to force the retirement of coal plants and fundamentally alter the makeup of the U.S. electric generating system. This chapter brackets the trajectory of the existing coal-based generation and addresses several of the key drivers for change.

Some impacts on the generation fleet are cumulative, such as the impact of load cycling on maintenance costs and expected life of power plants. Reliability projections tend to underestimate the impact of current operating conditions on coal plants, as can be seen by comparing projections of future capacity factors to recent operational data from existing coal plants. The result of load cycling may be sharp increases in electric generation costs, much larger than anticipated in current economic projections. A rapid decline in baseload and dispatchable power due to an accelerated aging of the fleet could also severely reduce power supply reliability unless the overall system can be structured to absorb these changes, especially during extreme weather conditions.



AMERICAN OVERSIGHT

Other important factors include the social sentiment towards coal and lack of public understanding of its critical role in supporting the power grid. As explained in Chapter 1, this has resulted in more regulation, renewable power standards and limited market incentives for many of the attributes that coal plants bring to the grid and electric market, as well as consumer preference and Boardroom pressure for IRE generation. Although customer preference is sometimes assumed, and surveys show that while people state a willingness to pay more for electricity that is renewable-sourced, the reality is that few actually sign up to pay more, indicating that cost remains of high importance.[iii]

Consumers have come to assume that the grid will reliably supply power into the future. However, in some cases this reliability has come on the back of coal, nuclear and even oil (electric sources with onsite fuel storage). This was perhaps best demonstrated most recently during the Bomb Cyclone – the term used to describe the extreme cold weather system that challenged the grid in the U.S. East Coast – in December 2017 and January 2018 (see sidebar article page 30 on high impact low frequency events). Power reliability is perceived as a long-term sustainable mode of operation, even while the coal-based generation that underpins system stability is being retired. Maintaining stability of the grid during a shift toward new generation sources, including the role of the existing coal fleet, is a critical role for the Department of Energy.

## Generation Mix Projections

Several sources have estimated the future generation mix and the range of predictions is broad. From 65 to 100 GW of coal-based power is predicted to retire by 2030. EIA predicts in its 2018 Annual Energy Outlook[iii] (the source of Figure 10 and Figure 11 below) that coal-based power will remain flat from 2030–2050. At the other end of the spectrum, Bloomberg NEF's New Energy Outlook 2018 predicts that by 2050: "Coal and nuclear are pushed out by age and economics, such that by 2050 both nuclear and coal have almost disappeared from the electricity mix."[iv]

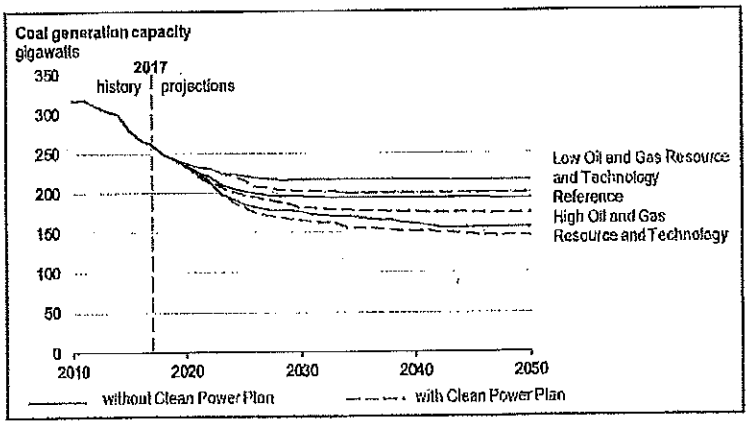



*Figure 10. EIA U.S. Coal Generation Capacity[iv]*



AMERICAN OVERSIGHT

Navigant predicts approximately 73 GW of coal-based power will retire in the next ten years, and has said, "That's more than twice what we projected last year at this time. It's more than we had two years ago when the Clean Power Plan was in the assumptions."[lvi]

As a result of these declines, coal generation is anticipated to lag well behind both natural gas- and renewable-based generation by 2050, while remaining slightly ahead of nuclear according to EIA (see Figure 11). Coal plant retirements are anticipated to continue through 2022, before coal generation stabilizes at about 1,200 billion kilowatt hours through 2050.[lvii] However, the likelihood of flat-lined generation is very low given the age, competitive environment and deteriorating conditions of coal-based plants. As addressed later in this chapter, a lack of investment incentives and increasing risk factors will most likely result in more dramatic declines in both generation and capacity of coal-based power plants than are currently projected by EIA.

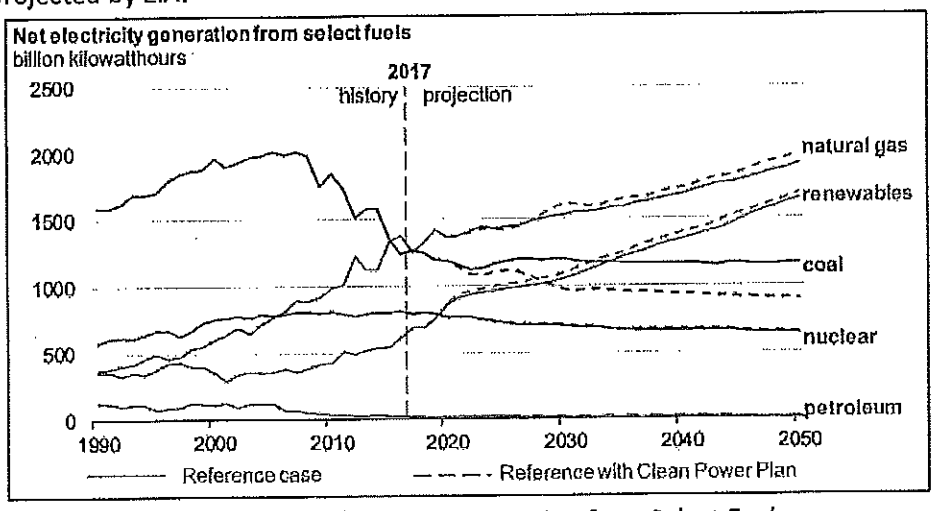



*Figure 11. Net Electricity Generation from Select Fuels*

These declines are also described in a current DOE National Energy Technology Laboratory (NETL) study on the existing fleet, which identified an implicit capacity gap attributed to coal unit aging that could result in up to 75 GW of coal retiring by 2025. This should be of great concern given the critical role coal plays as part of a diverse energy mix, including during severe weather events, such as the Bomb Cyclone event in early 2018. "The 30 GW of coal that ramped up to meet the surge in PJM load clearly includes the units most likely to retire due to insufficient market support, given those units were not running at baseload levels before the event."[lviii] This report on the Bomb Cyclone is described in further detail later in this chapter.

Numerous analyses indicate that without appropriate mechanisms that value the diversity, reliability and resiliency provided by the existing coal fleet, the downside capacity predictions are much more likely than the EIA flat line projections. Additionally, many factors driving coal generation downward will have a cumulative impact. Chapter 2 focuses on the outlook for coal and factors that could affect coal generation into the future.



AMERICAN OVERSIGHT

## Coal Generation Trajectory Basis

As shown in Figure 10, EIA expects U.S. coal-based electric generating capacity will continue to decrease from 2017 through 2030 by approximately 65 GW, then remain relatively stable at a level of approximately 190 GW through 2050. This comes on the heels of a net decrease in coal-based electric generating capacity of nearly 60 GW between 2011 and 2016. As noted previously, currently announced retirements do not capture all of the market dynamics that are prompting coal plants to retire, and these data likely underestimate the loss of these critical generating and grid stabilization resources without tailored action to save them.

Factors that EIA cites for causing these expected declines include: (1) competitively priced and growing natural gas production; (2) environmental regulations; and (3) increasing renewables generation due to improvements in technology and economics as well as various incentives and mandates. EIA forecasts that wind and solar generation will account for 64% of total electric generation growth through 2050, with natural gas usage for power generation also expected to increase over the same period. In terms of renewables, generation from solar PV is expected to surpass that from wind by approximately 2040, with the gap between the two continuing to grow in favor of solar PV thereafter.

These nationwide figures mask a significant amount of variation in the generation mix at the state and regional level. For example, California has no coal-based generation in-state, but significant amounts of generation from natural gas and renewables.[lix] However, about 5% of California's electricity is coal-based generation from other states. In 2015, at times as much as 50% of southern California's power was generated by coal via these inter-state imports.[lx]

Georgia, in contrast, relies primarily upon electricity generated from natural gas, nuclear and coal.[lxi] Due to a host of factors, from resource availability to state and regional energy and environmental policies, electricity generation mix variability is also reflected in the Integrated Resource Plans filed by utilities throughout the U.S.[lxii]

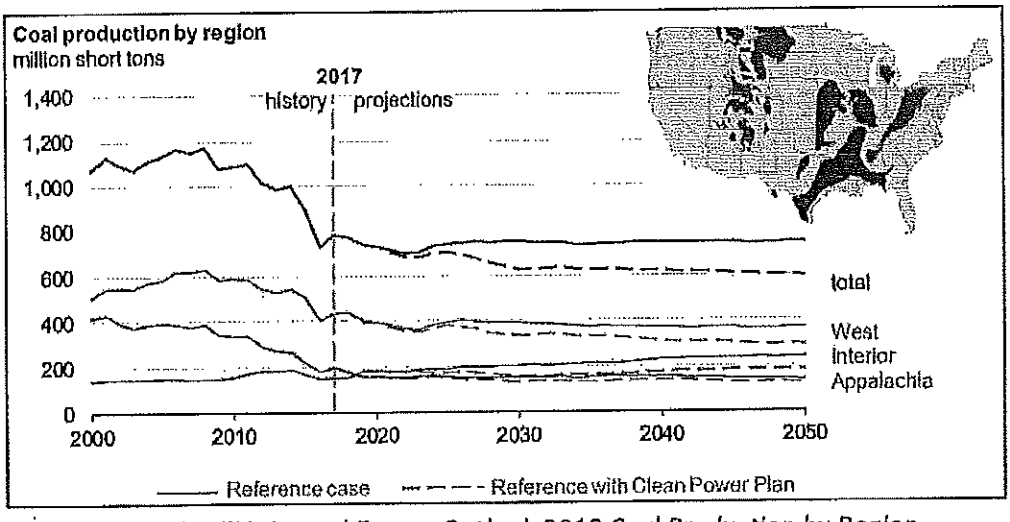



*Figure 12. EIA Annual Energy Outlook 2018 Coal Production by Region*



AMERICAN OVERSIGHT

The impact of these retirements on coal demand, and thus production, is somewhat predictable. According to EIA, coal production continues to decline – from 784 million short tons (MMst) in 2017 to 699 MMst in 2022, then rises slightly in the mid-2020s to 750 MMst, before leveling off through 2050 (Figure 12).

Numerous private sector estimates and forecasts expect greater declines than are shown in the EIA estimates. For example, IHS has predicted that about a third of the U.S. coal fleet (about 100 GW) will retire in the years ahead.[lxiii] And while energy forecasting is an imprecise science, and the need for greater transparency in the comparative analysis of fuel resource options remains, the broad consensus is that coal's past position as the dominant fuel source for electricity generation remains under economic and policy pressure for the foreseeable future.[lxiv]

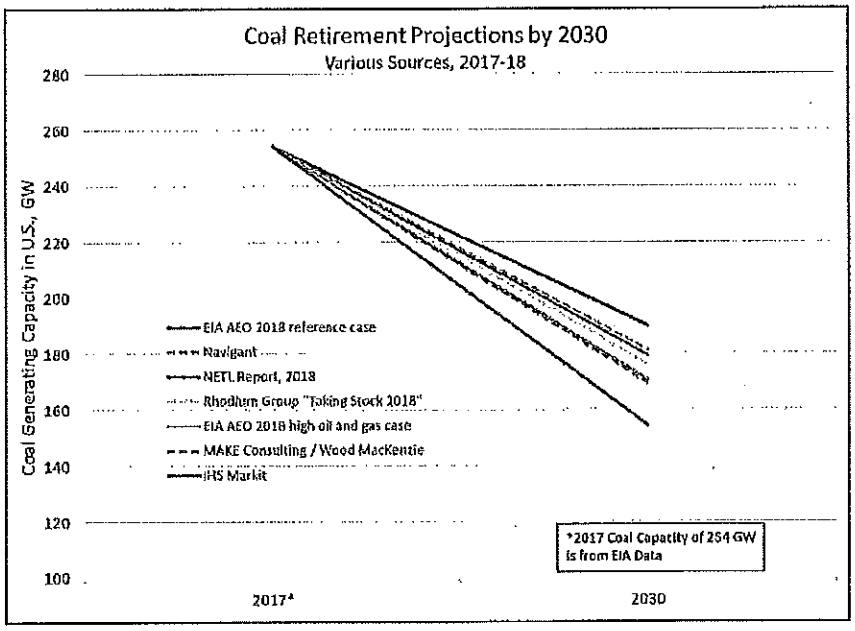



*Figure 13. Coal Generation Retirements Projected through 2030*[lxv]

Figure 13 depicts various projections of coal generation from several analyses. Each year the predictions for coal plant retirements become more severe as awareness of the multiple factors and cumulative impacts of these factors are assessed. These very real factors lead to increased risk for coal-based power plants, which must be managed against other pressures prompting a move away from coal.

Among the factors specifically influencing decisions to retain or retire coal generation assets are economics, unit age, unit size, impacts of load cycling, staffing, existing and future regulations and societal pressures.



AMERICAN OVERSIGHT

## Economic Pressures

The economic pressures on the power generation and distribution industry have created considerable uncertainty in financial decision-making regarding generating stations. Pricing curves tell the story well; pressure from low natural gas pricing is evident on average costs, as shown in Figure 14.

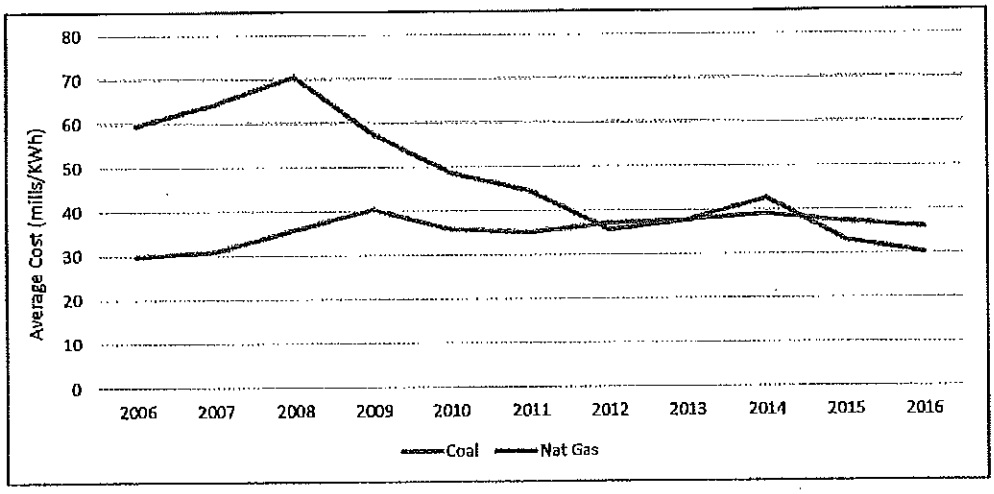



*Figure 14. Average Power Plant Operating Expenses for Major U.S. Investor-owned Units*

The EIA forecasts that U.S. natural gas prices to electric utilities will increase much more rapidly than coal prices. In its most recent Annual Energy Outlook (2018)[lxvi], EIA projects that natural gas prices to the electric power sector will increase at an annual average rate of 3.7% through 2050; whereas, for the same period coal prices will increase at an average of only 0.4%. In 2050, natural gas prices are forecast to be nearly five times as high as coal prices.

In the years to come, economic considerations associated with investments in aging assets will continue to exert pressure on generators to retire coal power plants. Recent years have seen reduced funding for O&M activities at coal-based units, with little capital expended to replace aging equipment. As a result of these financial restrictions, many stations are now operating with limited redundancy in critical systems and deteriorating material conditions. This creates a situation where the rated capacity has not changed, but the reliability could be significantly less. If the U.S. plans to continue to rely on the existing coal fleet, the reliability and resiliency attributes will need to be compensated. Otherwise, uncertainty and other factors will lead to continued lower investment levels and reliance on these plants to continue to operate reliably, and at an only slight increase in O&M expenditures, is unrealistic. Thus, the flat operating expenses indicated by Figure 14 is likely unsustainable going forward.



AMERICAN OVERSIGHT

Given competition with natural gas and that IRE resources dispatch ahead of firm, dispatchable plants, many coal plants are cycling. Increased cycling results in increased capital expenditures, increased O&M costs, increased outages and higher fuel consumption. The need for coal and other forms of dispatchable generation (e.g., nuclear) to backstop IRE poses an interesting conundrum when generators' costs of operations increase for these cycled plants. When dispatched less, these coal and nuclear plants receive less investment, contributing to their decline.

Unit age, load cycling, staffing impacts and costs of existing and potential future regulatory compliance add further costs that cumulatively contribute to decisions to shutter the nation's coal plants.

## Unit Age

The projected age of the coal fleet in 2040, incorporating EIA 860 data from 2016, is shown in Figure 15. The average unit in 2040 will be 66 years old; many of these older units will presumably be retired prior to 2040. Other analyses have shown that the capacity factor for coal plants drops with age, with a steady loss that becomes more dramatic as the unit reaches 40 to 50 years of age. This age of the existing fleet as shown in Figure 15, as well as in projections by NETL showing that capacity factor shifts downward corresponding to age, with units losing at least 20% of actual capacity factor by age 51.[lxvii] The additional maintenance costs and potential need for upgrades for these aging facilities are significant. Yet cost is not the only barrier. As addressed elsewhere in this report, New Source Review (NSR) requirements add additional burdens and barriers to improving efficiencies that could make coal plants more competitive.

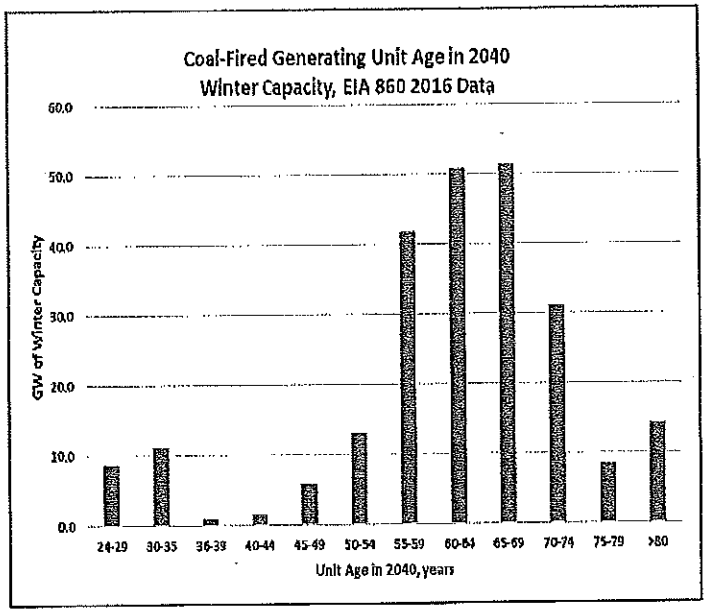



*Figure 15. Projected Unit Ages in 2040 without Further Unannounced Retirements*



AMERICAN OVERSIGHT

With the challenging economics and uncertainty of environmental regulations' impact on coal plants, state regulated Investor Owned Utilities (IOUs) may have the opportunity to retire coal plants and replace the capacity with alternative generation, such as natural gas plants. This option could increase earnings opportunities for the IOUs, if earnings are based on its capital investment. With this incentive to shareholders, it is important that the IOUs and their regulators appropriately recognize the reliability and resiliency benefits of coal generation to the customers in its resource decisions.

## Staffing Impacts

At utilities, the favorable career path was traditionally to work at plants for many years, or gain expertise and move among plants or upward to a corporate position. Today, this path is truncated or eliminated for early-career entrants. Desirable positions are shorter-term; many staff who have had the extensive exposure and training needed to run a plant are moved around.

The staff with broader expertise at plants are aging along with the plant equipment itself. Retirements of plant personnel and the associated loss of expertise is rampant, and this has direct impacts on quality of maintenance, plant knowledge and decision making. Strapped coal plant owners cannot afford to incentivize or retain staff, continually consolidating positions as attrition occurs, and cannot offer a promise of long-term positions at the many plants being evaluated for retirement. In addition to the challenges to staffing at plants, the scientists, researchers and engineers that will develop and deploy the next generation of coal technologies cannot be sustained without sufficient funding and continued commitment. Investment is needed to fill the pipeline of future works that will be needed to sustain the coal fleet as well as new technologies.

The status of industry staffing was studied several years ago showing that the expertise needed to keep these plants going has been an ongoing concern. For example, a National Academy of Sciences study published in 2013 concluded that most energy and mining industry workers were over age 45 and a retirement bubble was anticipated, all while recruitment of qualified entrants was already a challenge.[lxviii] The loss of long-term staff who experience and then share the history of plant equipment, operations and problem solving is difficult to quantify. One impact is increased costs due to utilization of expert outsiders as in-house expertise decreases. Another impact is increased risk in the areas of environmental compliance, safety and equipment reliability as redundancy of core knowledge dissipates. Both cost and risk are key factors driving decisions to retire these plants.



AMERICAN OVERSIGHT

## Regulations[4]

The regulatory environment for coal plants has become increasingly challenging over the past few decades and is a significant contributor to plant operating and maintenance costs. As the costs associated with regulatory compliance increase, coal plants become increasingly vulnerable for retirement. Among the regulations that continue to impose costs on coal plant operators are NSR, the Coal Combustion Residuals (CCR) rule[5], and the Effluent Limit Guidelines (ELG). During the preparation of this report, EPA released its Affordable Clean Energy (ACE) plan, which focuses on inside-the-fence efficiency improvements to coal power plants rather than system wide changes that characterized the Clean Power Plan (CPP).[lxix]

Protecting the environment is a core value of the utility industry, which has significantly reduced emissions over the past decades. Nonetheless, the combined impact of regulations that target coal plants is significant.

## Societal Pressures

As discussed in Chapter 1 (Societal Considerations), over the last few years, shifts have occurred in public perception that have already had a major impact and will continue to have a dramatic impact on the grid in the future. Two areas are significant. One is the criticism of coal and lack of transparency as to the benefits of the electricity system's current dependence on this critical resource. The second is the perception that renewables, led by wind and solar generation, are able to reliably and cheaply provide 100% of U.S. electricity needs. The common theme between these two, which the Department of Energy could address, is the lack of transparency regarding the value of diversity and how various fuel sources actually fit into the grid both today and in the future.

In addition, low-emission technologies for coal – such as improved efficiency and carbon capture, use and storage (CCUS) – are not well understood by the general public. This results in a lack of support for these important technologies and, thus, slower development and deployment. However, CCUS on coal and gas has been shown to be a cost-effective approach to reducing emissions, especially when compared to IREs at higher penetration. For example, according to a study that compared different emission reduction options, a coal plant retrofitted with CCUS could reduce $CO_2$ emissions at a cost of $66/ton $CO_2$ compared to reducing $CO_2$ through the use of high-penetration solar with battery backup at a cost of $432/ton $CO_2$ – the most expensive of the options studied.[lxx] Just as a diverse portfolio of electricity sources provides the most reliable, cost-effective operation, diversity in emission reduction strategies also provides the most cost-effective approach – including coal plants with CCUS.

---

[4] A more expansive discussion of regulations impacting the existing U.S. coal fleet is included in Chapter 3. Policy.
[5] See Appendix 2B for a discussion of the CCR rule.



AMERICAN OVERSIGHT

EXT-18-2615-G-000377

Educating the general public about these low-emission options, the general value of diversity, the contribution that coal-based generation currently provides to our energy security and quality of life and will continue to provide in our nation's energy resource portfolio is a key approach that will enable a multi-stakeholder discussion on the path forward to maintain energy stability. Education and transparency are also key to the integration of IRE into the grid.

While the progress made by IRE sources is significant, the general public does not realize the extent of the challenges of integrating large quantities of undispatchable energy into the grid, or the real costs of IRE. The recent announcements by companies like Apple and Google – that they are running their facilities off of 100% renewables[lxxi] – has exacerbated this view and is leading to a race among companies to be able to make a claim of 100% renewables by utilizing power purchase agreements (PPA).

By presenting numbers based on "average energy produced" versus "actual energy consumed", these trusted names are indirectly perpetuating the view that a grid operated on 100% IREs is readily achievable in the near-term, which it is not. The use of PPAs also does not account for the challenges in transporting electricity, in that they treat electricity produced in distant regions as if it is being consumed locally. In the end, the public is being led to believe that intermittency and non-local generation are not challenges for the grid.

The resulting public pressure on politicians to support growth of IREs and retirement of coal plants has unforeseen consequences (e.g., the deterioration and retirement of baseload and dispatchable power plants) that may not be apparent until it is too late to plan for an effective approach to system stability. Education and transparency regarding these issues could benefit energy policy and the public's support for development and implementation of a viable path forward. A current example demonstrating these risks will be elaborated in the next chapter.

## Repercussions

As noted earlier, U.S. residential and business consumers assume that the grid will operate reliably 24/7. Maintaining the grid's day-to-day stability and its ability to recover from either natural or manmade disruptions, depends in part on the availability of dispatchable resources, such as coal. The cumulative impact of the many factors addressed in this chapter suggest that coal-based generation faces a precarious future. At issue is how an energy portfolio without adequate dispatchable power is likely to impact grid resilience.

In acknowledgement of their growing concerns with resiliency, regional transmission organizations (RTOs) and independent system operators (ISOs) are now assessing their fuel security vulnerabilities and other grid-resilient attributes that impact resource adequacy.[6] The future reliability and resilience of the nation's power grid depends on assessing these many risk factors.

[6] See Chapter 3 – Wholesale Electricity Markets.



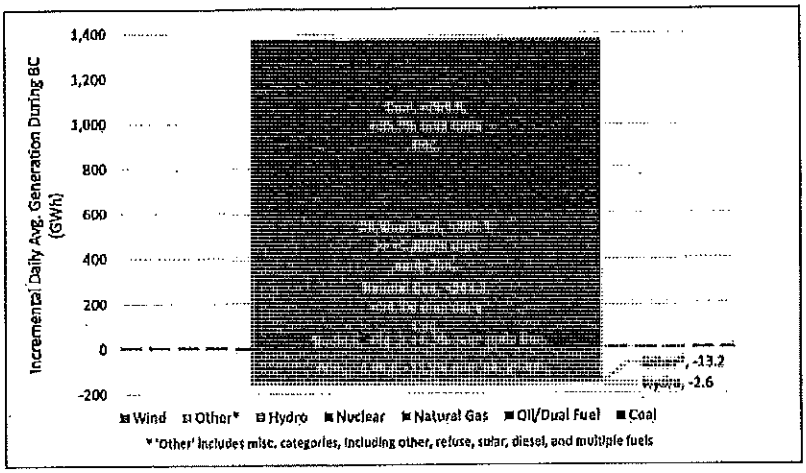
AMERICAN OVERSIGHT

## High Impact – Low Frequency Events: Lessons Learned

In March 2018, the U.S. DOE National Energy Technology Laboratory (NETL) released a study entitled "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units, Volume I: The Critical Role of Thermal Units During Extreme Weather Events."[lxxii] The study fully documents how recent weather events (e.g., the Bomb Cyclone 'BC') make it clear that grid resilience is enhanced by coal and impaired by non-dispatchable generation such as wind and solar.[lxxiii]

One of the compelling conclusions of the DOE/NETL report is that "Across the six ISOs, coal provided 55% of the incremental daily generation needed, or 764 out of 1,213 Gigawatt-hours per day (GWh/d)" and that "[d]uring the worst of the storm from January 5-6, 2018, actual U.S. electricity market experience demonstrated that without the resilience of coal- and fuel oil/dual-firing plants—its ability to add 24-hour baseload capacity—the eastern United States would have suffered severe electricity shortages, likely leading to widespread blackouts."

*Fuel-based generation resilience during the Bomb Cyclone, six ISOs*




While statistics across all six impacted ISOs are impressive, the story of the largest impacted interconnection, PJM, is worthy of specific emphasis. DOE/NETL documented that:

*"In PJM, the largest of the ISOs, coal pravided the most resilient form of generation, due to available reserve capacity and on-site fuel availability, far exceeding all other sources (providing three times the incremental generation from natural gas and twelve times that from nuclear units);* ***without available capacity from partially utilized coal units, PJM would have experienced shortfalls leading to interconnect-wide blackouts."***

The surge in coal accounted for 74% of incremental energy in PJM during the BC, with fuel oil providing 22%; other sources provided little to no surge capacity.



AMERICAN OVERSIGHT

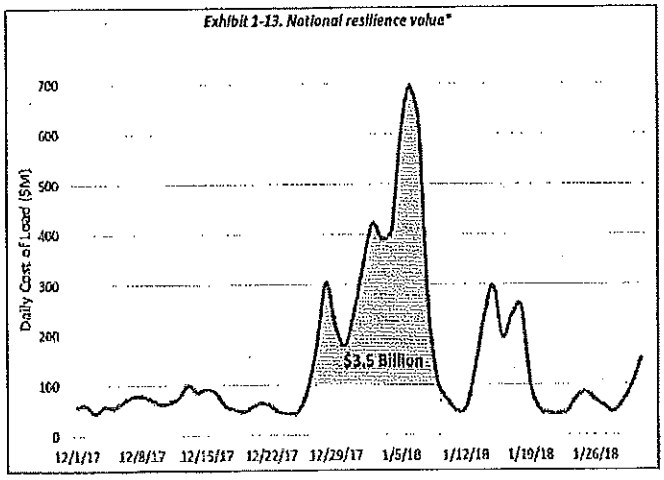
*PJM output December 2017 - January 2018, average daily GWh*

| Fuel | 12/1-12/26 | 12/27-1/9 | Delta | Percentage Change | Share of Increase |
|---|---|---|---|---|---|
| Coal | 746 | 1,113 | 367 | 49% | 74% |
| Gas | 607 | 619 | 12 | 2% | 2% |
| Renewables | 127 | 123 | -4 | -4% | -1% |
| Nuclear | 846 | 851 | 5 | 1% | 1% |
| Oil | 2 | 111 | 109 | 455% | 22% |
| Total | 2,328 | 2,817 | 496 | 21% | 100% |

The resilience benefits imparted to the PJM market were so significant, in DOE/NETL's opinion that PJM could not have survived this event without coal. Specifically, DOE/NETL concluded:

*"In the case of PJM, it can also be shown that the demand could not have been met without coal. At peak demand, January 5, 2018, natural gas prices exceeded $95/MMBtu in eastern PJM.* ***Had coal been removed, a 9–18 GW capacity shortfall would have developed, depending on assumed imports and generation outages, leading to system collapse."***

Importantly, DOE/NETL's analysis assessed the economic value of the energy resilience that coal provided during the Bomb Cyclone:




*"The value of the resilient coal- and oil-based generation can be quantified by integrating over the term of the BC. The increase in the cost of energy services over the two-week period from December 27 to January 9 was $288M per day, equivalent to $98 per MW, compared with costs from the preceding two-week period, and $225M per day, or $73 per MW, higher than the following two-week period that featured a short return of extreme cold. This, in effect, represents a* ***value of resilience, which, during the BC, rose to $3.5 billion."***



AMERICAN OVERSIGHT

# Chapter 3: Measures to Optimize Diversity & Resiliency

## Key Findings – Chapter 3

- **Opportunities exist to streamline, re-evaluate, amend and implement regulatory and legislative measures to enable the U.S. existing coal fleet to operate more efficiently and effectively. Among the measures to be considered: reforms of NSR, PURPA, CCR and ELG regulations; tax credit support; and streamlined permitting for CCUS initiatives.**
- **Wholesale electricity market reform is needed to equitably value resilience as well reliability attributes. Various out-of-market subsidies and mandates put coal at a competitive disadvantage and fail to acknowledge coal's role in providing fuel security and other benefits supporting grid stabilization.**
- **There are many technology options available to improve the competitiveness of the existing U.S. coal fleet. These technologies can lower the cost of fuel, increase coal quality, improve plant efficiency and flexibility, reduce the costs of environmental retrofits, advance carbon capture and the beneficial use of $CO_2$ and support the deployment of new products from coal and coal byproducts.**

## Introduction

Secretary Perry requested that the NCC identify measures that could be taken to optimize the U.S. existing coal fleet to enable it to continue providing reliable, resilient and affordable power. In this chapter, actionable measures are detailed in the areas of policy, wholesale electricity markets and technology. No one area is more important; immediate, proactive engagement in each of these three areas is needed to optimize U.S. coal plants.

## Policy Considerations

Opportunities exist to streamline, re-evaluate, amend and implement regulatory and legislative measures that will enable the U.S. existing coal fleet to operate more efficiently and effectively.

### New Source Review

As noted in the National Coal Council report "Leveling the Playing Field: Policy Parity for Carbon Capture and Storage Technologies" (November 2015), "the uncertainties created by NSR rules, their enforcement by the EPA, and the prohibitive cost of administering NSR compliance have created strong disincentives to the widespread deployment of efficiency improvements."[lxxiv]

Recent regulatory initiatives at EPA and legislative proposals in Congress have the potential to eliminate regulatory uncertainty and reduce litigation risks for utilities seeking to implement energy efficiency measures at their coal plants. Several other benchmarks are also provided regarding the preliminary applicability tests for NSR.[lxxv]



AMERICAN OVERSIGHT

*EPA Action*. On August 21, 2018, EPA released its Affordable Clean Energy (ACE) plan. This proposed plan aims to reduce emission by relying largely on efficiency improvements that can be made to the existing fleet of coal units. To alleviate concern around some of these efficiency improvements triggering NSR, EPA has proposed permitting changes to the NSR permitting program. For example, EPA has proposed to use an hourly emissions rate to determine if an increase in emissions has occurred as part of a change to a power plant.

*Legislative Initiatives*. To better understand and respond to concerns related to the NSR program, the U.S. House of Representatives' Energy and Commerce's Subcommittee on the Environment recently held two hearings. In February 2018, the Subcommittee conducted a hearing entitled, "New Source Review Permitting Challenges for Manufacturing and Infrastructure."[lxxvi] The background memorandum for the hearing explained that "an existing facility is required to obtain an NSR permit in order to perform efficiency upgrades or to install new pollution control technologies. However, since many existing facility owners are not willing to undergo the lengthy and uncertain NSR permitting process, they are effectively foregoing the opportunity to increase the efficiency of their facility, while also reducing emissions." The hearing detailed concerns relating to when a project should be subject to the NSR permitting process based on the computation of an "emissions increase."

To discuss possible legislative text to resolve uncertainty, the Subcommittee conducted a second hearing in May 2018, entitled, "Legislation Addressing New Source Review Permitting Reform."[lxxvii] During that hearing, a discussion draft of proposed legislation detailed possible amendments to the NSR program. The proposed statutory text is narrowly focused to further define "modification" and resolve issues related to "routine maintenance, repair, and replacement". To reduce significant delays in permitting, the proposed amendment to the definition of "modification" would not apply to projects that implement efficiency measures which reduce the amount of any air pollutant emitted by the source per unit of output. The proposed statutory text also limits the emissions increases to the maximum achievable hourly emission rate demonstrated in the last ten years.

In their testimony on the proposed legislation at the May Congressional Subcommittee hearing, Ross Eisenberg, National Association of Manufacturers (NAM) and Jeffrey Holmstead, Bracewell LLP highlighted how NSR has led to the continued retirements of coal-based power plants. Eisenberg stated that:

> *"An inability to define what is 'routine maintenance' has resulted in NSR Notices of Violation being issued for environmentally beneficial projects like economizer replacement, steam turbine upgrades, feed water heater replacements, and similar activities. In comments to the EPA's draft Clean Power Plan, the Utility Air Regulatory Group (UARG) cited more than 400 instances in which a regulated entity took on a project to improve the energy efficiency of a power generation unit, only to be targeted by the EPA or citizen suits alleging that it had violated NSR."*



AMERICAN OVERSIGHT

Holmstead's testimony demonstrates the need for clarity around the term major modification.

> *"The question of what is a 'major modification' that triggers NSR at an existing source has been the source of much controversy and is discussed in several EPA regulations, more than a thousand pages of guidance documents and Federal Register notices, and dozens of court cases – and there is still much uncertainty about how to determine whether something is a major modification. This is important to industry because, if a company makes a 'major modification' to a facility, the cost of going thraugh NSR, and the delays it can cause, are very substantial. In some cases, companies that have undertaken a $500,000 project that, according to EPA, is a 'major modification' that would force them to spend hundreds of millions of dollars in new control equipment. Even without the cost of new equipment, the time it takes to go through the NSR permitting process can be very long – about a year on average but, in some cases, many years. Because of the cost and delays, companies are very reluctant to do anything that might trigger NSR."*

Tax Credits

Various tax credits have been proposed or passed that could provide support for the existing U.S. coal fleet.

*Operation & Maintenance Tax Credits*. Three bills have been introduced in Congress in 2018 that would provide a temporary tax credit to cover a portion of operation or maintenance expenses for existing coal-based power plants. These bills have been introduced by Representative Larry Bucshon (R-IN) (Electricity Reliability and Fuel Security Act, H.R. 5270), Senator Shelley Moore Capito (R-WV) (Electricity Reliability and Fuel Security Act, S. 2677) and Senator Joe Manchin (D-WV) (Energy Reliability Act of 2018, S. 2681).[lxxviii] Offsetting a small portion of O&M expenses for the existing coal fleet is estimated to prevent the retirement of as much as 24,000 MW of coal-based generation.

All three bills amend the Internal Revenue Code to provide a tax credit to offset a portion of the O&M expenses for existing coal-based power plants. The purchase of coal for fuel does not qualify as an O&M expense under any of the bills. The tax credit is equal to either 30% of the plant's annual O&M expenses or $13 per kilowatt of installed (nameplate) generating capacity, whichever is less. As proposed, the tax credit is available for tax years beginning 2018 and ending before 2023. The tax credit is transferrable under all three bills, although the two Senate bills include provisions – with slightly different language – that allow the tax credits to be transferred by any taxpayer, including rural cooperatives and municipal utilities, to certain eligible partners who can then claim the credits. The House bill limits transferability to rural cooperatives and municipal utilities but not all taxpayers.



AMERICAN OVERSIGHT

*45Q Implementation & Synergistic Policies to Enhance Implementation*. On February 9, 2018, Congress passed and the President signed into law the 2018 Bipartisan Budget Act. Section 41119 amends the existing federal tax credit for $CO_2$ sequestration under §45Q (45Q) of the Internal Revenue Code (26 U.S.C. §45Q).[lxxix] Section 41119 contains the text of S. 1535, the "Furthering Carbon Capture, Utilization, Technology, Underground Storage, and Reduced Emissions Act of 2017" ("FUTURE Act").

As detailed by the Carbon Capture Coalition,[lxxx] key provisions of the FUTURE Act modify the existing 45Q tax credit in the following ways:

- Increases the credit value incrementally over 10 years from $10 to $35 per metric ton of $CO_2$ stored geologically through enhanced oil recovery (EOR) and from $20 to $50 per metric ton for saline and other forms of geologic storage.
- Provides $35 per metric ton for $CO_2$ captured and put to beneficial uses beyond EOR that reduce lifecycle emissions.
- Authorizes the program for carbon capture projects that commence construction within six years from enactment; projects meeting that timeframe can claim the credit for 12 years from being placed in service.
- Reduces the minimum eligibility threshold for qualified facilities from 500,000 metric tons of $CO_2$ captured annually to 100,000 metric tons for industrial facilities and 25,000 metric tons for $CO_2$ captured and put to beneficial uses other than EOR. Retains the 500,000 metric ton eligibility threshold for electric generating units.
- Awards the credit to the owner of the carbon capture equipment and allows transfer of the credit to other entities responsible for managing the $CO_2$ to provide greater flexibility for companies with different business models to utilize the tax credit effectively, including cooperatives and municipal utilities.

Tax data are non-public, making any assessment of 45Q's utilization by the existing coal fleet subject to substantial uncertainties. To date, only one coal-based power plant in the U.S. has retrofitted $CO_2$ capture technology – the PetraNova project in Texas. Regardless of 45Q, retrofitting $CO_2$ capture technology to an existing coal plant involves resolution of a remaining host of CCUS-related technical, economic and policy issues. In 2012, the IEA concluded that only approximately 29% of the then existing installed global coal-based fleet could potentially be retrofitted with CCUS for a variety of reasons, including plant age.[lxxxi] For these and related reasons, some experts believe that in the absence of other incentives the amended 45Q is more likely to be used by industrial facilities with relatively pure $CO_2$ sources, such as ethanol plants, refineries and ammonia producers.[lxxxii]



AMERICAN OVERSIGHT

A recent analysis suggests that the amended 45Q could spur the construction of new coal plants by enabling them to bid "negative" into wholesale markets, based on a variety of assumptions.[lxxxiii] In the meantime, a number of legislative proposals currently under consideration would complement and may further incentivize utilization of the 45Q tax credit for existing coal plants. The Carbon Capture Coalition notes that "While recent congressional extension and reform of the 45Q tax credit provides the most important federal incentive for encouraging private investment in carbon capture deployment, additional federal incentives would complement 45Q and enable more capture projects to become commercially feasible, thus accelerating deployment across multiple industries."

*Business Structures to Support 45Q.* Federal legislation that would support 45Q use include initiatives to make carbon capture projects eligible for tax-exempt private activity bonds (PABs) and master limited partnerships (MLPs). PABs would allow developers of carbon capture projects access to tax-exempt debt to help finance their projects, thus lowering their capital costs. The Carbon Capture Improvement Act of 2017 (S. 843)[lxxxiv] makes carbon capture projects eligible for PABs and has been introduced in the U.S. Senate by Senators Rob Portman (R-OH) and Michael Bennet (D-CO), and in the U.S. House of Representatives by Congressmen Carlos Curbelo (R-FL) and Marc Veasey (D-TX).

The MLP structure combines the tax benefits of a partnership with a corporation's ability to raise capital in public markets. Thus, allowing carbon capture projects to be MLPs would reduce the cost of equity and provide access to capital on more favorable terms. The MLP Parity Act of 2017 (S.2005)[lxxxv] would provide this eligibility and has been introduced in the U.S. Senate by Senators Chris Coons (D-DE) and Jerry Moran (R-KS) and in the House by Congressmen Ted Poe (R-TX) and Mike Thompson (D-CA).

In its Policy Parity report, NCC supported the application of PABs and MLPs to advance the deployment of CCUS.[lxxxvi]

*48A Investment Tax Credit.* In 2005, Congress established an investment tax credit or "Credit for Investment in Clean Coal Facilities" in the Energy Tax Incentives Act (ETIA) of 2005. ETIA authorized $1.3 billion in tax credits to support advanced coal-based generation technology that meets specifics $SO_2$, $NO_x$, PM and mercury emission limits and that is:

1) An Integrated Gasification Combined Cycle (IGCC); or
2) A new unit meeting design heat rate requirements based on coal type of about 40%; or
3) An existing unit meeting a design heat rate requirement based on coal type, minimum of which is 35%, plus a 4 to 7 percentage point improvement in efficiency (depending on coal type) with the addition of new equipment compared to previous operations.



AMERICAN OVERSIGHT

To be eligible, an advanced coal-based generation technology must meet both the emissions levels and efficiency requirements, unless it is an IGCC which is exempt from the efficiency requirements. In 2008, Congress provided an additional $1.25 billion in tax credits through the Energy Improvement and Extension Act (EIEA) of 2008, or the "Expansion and Modification of Advanced Coal Project Investment Credit," which increased the value of the tax credit to 30% of the eligible investment and imposed a new requirement to capture and store at least 65% of the $CO_2$ in order to be eligible for the tax credits. However, the heat rate requirements from the 2005 statute were not adjusted when the CCUS requirement was added to the 2008 bill. Adding CCUS equipment to a new or existing unit results in an efficiency loss to the generating unit, as auxiliary power (as steam and electricity) is needed from the unit to power the $CO_2$ capture system.

It is important to note that problems with the requirements of the 2008 statute are not limited to specific units. The efficiency requirements would make most $CO_2$ capture retrofits to an existing unit ineligible. In its current form, the tax credit does not incentivize CCUS on new or existing coal plants in the near term, which is a lost opportunity and, if changed to accomplish Congress' intent of reducing emissions, could support CCUS projects on the existing fleet of coal-based power plants. Relative to other potential policy levers discussed in this section, 48A may be more easily achieved as the funding has been appropriated and the program is already in existence.

Land Use Policies Related to Carbon Storage and Utilization

$CO_2$ storage resources in the U.S. are large (see Figure 16). The National Energy Technology Laboratory (NETL) estimates that saline formations could store from 2.4 to 21.6 trillion metric tons of $CO_2$ ($MTCO_2$). In oil and gas reservoirs, storage potential ranges from 185 to 230 billion $MTCO_2$.[lxxxvii] Unminable coal areas could provide an additional 50 to 110 billion $MTCO_2$. Annual emissions from of the current coal power plant fleet were about 1241 $MTCO_2$ in 2016.[lxxxviii]

In West Texas and the Rocky Mountains, $CO_2$ flooding for EOR currently produces about 200,000 barrels (bbl) of oil per day.[lxxxix] In a Senate Environmental and Public Works Committee hearing last year it was noted that carbon capture and storage (CCUS) faces bigger financial obstacles than technical ones if it is to spread beyond EOR. Committee Chair John A. Barrasso (R-Wyo.) indicated that CCUS and EOR should play an important role in a true "all of the above" energy strategy. "We have a win-win situation with $CO_2$-enabled oil recovery. We have the potential to make it economical to extract more than 60 billion bbl of oil in this country."[xc]

Several plants in the existing coal fleet are either located on federal and/or tribal lands, or have reasonably proximate access to the same. At least one of DOE's CarbonSAFE[xci] projects is located in Wyoming, a state with significant federal lands as well as tribal lands. As a result, the facilities could potentially benefit if the relevant authorities enacted $CO_2$ storage laws and regulations for these resources.[xcii]



AMERICAN OVERSIGHT

A 2009 DOE study concluded that the storage resource beneath Federal lands ranges between 126 and 375 billion metric tons, with the bulk of that west of the Mississippi River – specifically Montana, Wyoming and the Dakotas.[xciii] Others benefits of storing $CO_2$ under federal lands include only having to deal with one landowner. This approach is no panacea, though, as utilization of federal lands comes with a host of regulatory restrictions, including but not limited to application of the National Environmental Policy Act (NEPA).

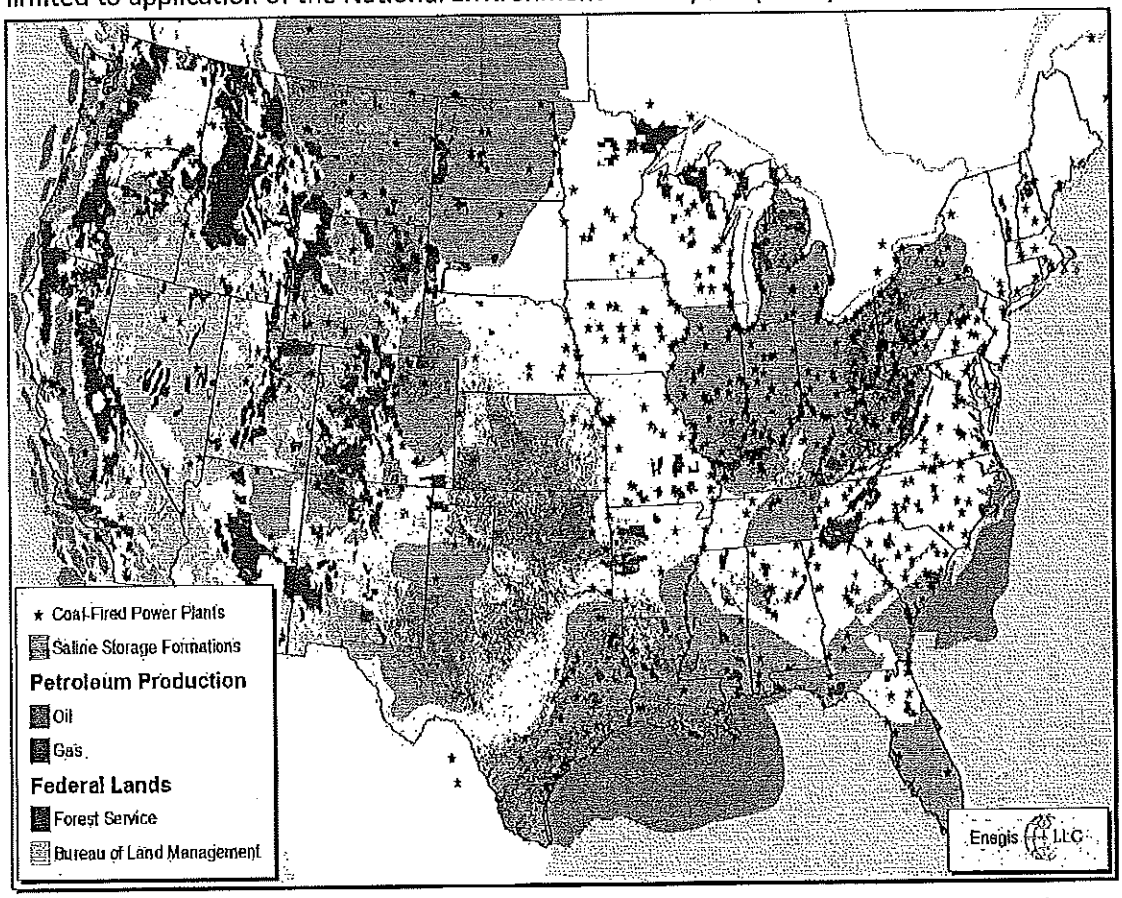



*Figure 16. Location of Potential CO2 Storage, Oil and Gas Production, and Coal-based Power Plants*

Congress has never enacted a law that provides a regulatory framework for CCUS on public lands, nor has the U.S. Department of the Interior (DOI) published relevant regulations or guidance. There is no leasing program or established guidance, for example, on obtaining $CO_2$ injection and storage rights into federal pore space. The situation is better for pipelines, as the Bureau of Land Management (BLM) has authority to issue rights of way (ROW) for $CO_2$ pipelines pursuant to the Mineral Leasing Act (MLA); pipeline developers receiving a ROW pursuant to the MLA are required to operate the pipeline as a common carrier. The United States Geological Survey (USGS) also has developed a methodology to assess storage capacity in oil and gas reservoirs and saline formations.[xciv]



AMERICAN OVERSIGHT

EXT-18-2615-G-000387

Public Utility Regulatory Policies Act of 1978 Reform

The increasing pressure to reform the 1978 Public Utility Regulatory Policies Act (PURPA) is in response to changes in the 21st century electricity landscape compared with the energy crises that defined the 1970s. The overarching goal of PURPA was to promote energy conservation and the production of alternative sources of energy, including renewable energy. Efforts to reform or modernize PURPA focus on both regulatory reform for which FERC has authority, and more substantive reform that would have to be authorized by Congress. Rep. Tim Walberg (MI) has filed a bill (H.R. 4476), PURPA Modernization Act of 2017, and Congressional testimony took place in January 2018, before the U.S. House of Representatives Subcommittee on Energy.[xcv] Senator Barrasso (WY) has also introduced a PURPA reform bill (S. 2776).[xcvi]

To help achieve the alternative and renewable energy goals, PURPA established a new class of generating facilities – qualifying facilities (QFs). QFs were grouped into two categories – small power production facilities and cogeneration facilities. Small power production facilities are those hydro, wind, solar, biomass, waste or geothermal facilities producing 80 MW or less. A cogeneration facility produces electricity and another form of thermal energy such as heat or steam. PURPA required electric utilities to purchase power produced by QFs, a requirement referred to as the mandatory purchase obligation. Utilities were required to purchase this power at the utility's avoided cost – the cost the utility would incur if it were to generate the power itself or purchase from another source. States have discretion in interpreting and determining avoided cost, and thus there is not a consistent rate across the country.

When PURPA was enacted, wholesale electricity markets did not exist, oil made up a large share of the electricity generation portfolio, electricity demand was growing and renewable energy technologies were nascent. The 1970s energy scenario looks nothing like today's electricity landscape. Competitive power markets have emerged and most areas of the country no longer have capacity constraints as a result of abundant natural gas resources, declining costs of renewable technologies and flat or declining customer demand for electricity. In addition, many states' policies mandating RPS have had a significant impact on the growth in renewable generation.

The key problem for existing electric generators is PURPA's mandatory purchase obligation of QF resources using long-term contracts at the utility's forecasted avoided costs. This leads to new unneeded resources coming on line, potentially resulting in prioritizing non-dispatchable resources at the expense of existing fossil resources. The National Association of Regulatory Utility Commissioners (NARUC) has proposed that FERC adopt regulations that base power purchased from a QF on competitive solicitations or market clearing prices, rather than use the current administratively determined avoided cost.[xcvii] FERC has already indicated its willingness to look into regulatory changes — including reform of the so-called "one-mile" rule that has inadvertently allowed large renewable developers to disaggregate their projects into several QFs to avail themselves of the mandatory purchase obligation.



AMERICAN OVERSIGHT

EXT-18-2615-G-000388

PURPA reform would more realistically reflect today's electricity landscape and ensure utilities are not forced to purchase power they do not need.

Coal Combustion Residuals

In 2015, EPA finalized new rules for coal combustion residuals (CCRs) under the Resource Conservation and Recovery Act (RCRA). The rules set standards for existing CCR impoundments and require closure of ash ponds found to be contaminating groundwater. Ash ponds or landfills must be closed if they lack structural integrity or are in sensitive locations. The CCR rule imposes high costs on certain disposal sites. The rule may drive units to retire as the compliance costs become prohibitive, adding to the cost of generation, or their disposal facility is forced to close, and the alternatives are too expensive.

While EPA considered the direct costs to utilities associated with the 2015 CCR regulations, the indirect impacts to the U.S. construction materials and infrastructure markets are having inflationary impacts on state and federal highway budgets, since cement substitution with fly ash pozzolans is reduced due to lack of availability or substantial price increases associated with added transportation costs. In the case of beneficial use of fly ash as a substitute for manufactured cement, the $CO_2$ reductions achieved are also a factor to be considered in rulemaking procedures. Since fly ash use in concrete usually offsets cement imports, the value of CCRs as a construction material helps meet the objectives of RCRA in resource conservation and recovery to assist in the U.S. balance of payments.

In March 2018, EPA proposed Phase 1-Part 1 revisions to the 2015 CCR rule, estimating that the proposed changes would save the regulated community between $31 million and $100 million per year. EPA finalized the first set of revisions in July 2018, noting that these will provide utilities and states more flexibility in how CCR is managed, and estimated that these provisions would save $28 to $31 million a year in regulatory costs. This revision would:

- Extend the life of some existing ash ponds from April 2019 until October 2020;
- Empower states to suspend groundwater monitoring in certain cases;
- Allow state officials to certify whether utilities' facilities meet adequate standards.

In addition, EPA plans to propose other Phase 2 reconsideration changes to the 2015 coal ash rule later in 2018 for finalization in 2019. A detailed discussion of the rule's impacts on coal plants and associated costs are presented in Appendix 2C.



AMERICAN OVERSIGHT

Effluent Limitation Guidelines

The Clean Water Act directs EPA to establish effluent limitations guidelines and standards (ELGs) to control discharges of pollutants to surface waters. These standards are set based on the performance of available, demonstrated technologies, although facilities are not required to use those technologies and may instead use alternative approaches to comply. ELGs represent a minimum expected level of control, implemented through an individual plant's National Pollutant Discharge Elimination System (NPDES) permits for direct dischargers, establishing pretreatment standards that must be met before wastewater can be discharged to publicly owned treatment works (POTWs). The ELGs promulgated by EPA cover discharges of certain water streams produced within a coal-based power plant, notably flue-gas desulfurization (FGD) wastewater, ash transport water and CCR leachate. The new ELGs are implemented by incorporation into NPDES permits as these permits are renewed and through local pretreatment programs.

For FGD wastewater, numerical limits were initially set for discharge of As, Hg, Se and $NO_2$+$NO_3$. For ash transport water (including both fly ash and bottom ash), the ELGs mandate zero discharge. In September 2017, EPA suspended limits and pretreatment standards for bottom ash transport water and FGD waste water for two years, pending a review. EPA has indicated that they will propose an updated rule by December 2018, with a final rule by December 2019. The earliest compliance date would be in November 2020.

Plants are already faced with closing ash ponds as part of the CCR rule. The ELGs add the possibility of adding a wastewater treatment module to the FGD discharge stream, if the plant plans to continue discharging this stream. The numerical limits on FGD wastewater discharge are critical in the determination of the potential costs of wastewater treatment. In some cases, for example, very low levels of selenium in wastewater discharge can only be attained by costly secondary treatment processes such as biological reactors.

Water-Energy Nexus

The term "water-energy nexus" refers broadly to the necessary role that water plays in the extraction of energy on the one hand and the role that electricity plays in the extraction, treatment and distribution of water on the other. When water is "used" it can be reused quickly or after some form of treatment; when water is "consumed" it is not immediately available for another use. For example, water use includes a power plant withdrawing water from a supply, using it as cooling water in the plant's operation, and then reintroducing it back into a water supply. Water "consumed" is the water that is evaporated in the process and not directly reintroduced into the water supply.



AMERICAN OVERSIGHT

Of the two most common cooling options for thermoelectric power plants, once-through and tower cooling, the latter typically "uses" 5% of the water used by the former, but consumes approximately 50% more total water.[xcviii] In line with these consumption rates, one regulator's default water consumption rate for coal- and natural gas-fired generation using once-through cooling systems is 0.35 gallon/kilowatt-hour (g/kWh). Comparatively, the cooling rates for coal-based generation using tower cooling is 0.60 g/kWh and for natural gas-fired simple-cycle generation is 0.70 g/kWh.[xcix]

A common misconception associated with the water-energy nexus is that shifting fuel sources or reducing electric demand will have a dramatic impact on water consumption. The data do not support this conclusion when set in context of other aspects of the water use and consumption picture. For example, the average American household requires 29 kW of power per day.[c] To produce this much power, a typical once-through cooled steam electric power plant will consume 9½ gallons of water.[ci] This is far less than the average household's daily water use for showers (47 gallons), toilet flushing (75 gallons) or outdoor watering (120 gallons).[cii]

Furthermore, electricity generation has been able to historically absorb large population increases without increasing water consumption. This is due mainly to new technologies and increased efficiencies that are able to reduce or maintain water use/consumption, while meeting increasing demand. Nationwide, since 1975, water withdrawals for thermos-electric power have essentially flat lined while population has increased by just shy of 100 million.[ciii] Consumption rates have also significantly dropped from almost 50,000 gallons/MWh in the 1950s, to a rate of close to 15,000 gallons/MWh presently.[civ]

As the U.S. continues to grow and its demand for water and energy grow along with it, knowledge and awareness about the water-energy nexus are likely to grow as well. This evolution has already led to increased awareness of the water-energy nexus and has proven to be a great enhancement of water planning processes around the nation. On the electric generation front, a better appreciation of the efficiencies already achieved in the electric generation sector and the relatively minor role that electricity production plays in the U.S.' overall water consumption will hopefully keep the water-energy nexus from being further distorted.



AMERICAN OVERSIGHT

## Wholesale Electricity Markets

According to FERC, "Traditional wholesale electricity markets exist primarily in the Southeast, Southwest and Northwest ... Utilities in these markets are frequently vertically integrated ... While the industry had historically traded electricity through bilateral transactions and power pool agreements, FERC Order No. 888 promoted the concept of independent system operators (ISOs) ... Along with facilitating open-access to transmission, ISOs operate the transmission system independently of, and foster competition for electricity generation among, wholesale market participants. In FERC Order No. 2000, the Commission encouraged utilities to join regional transmission organizations (RTOs) which, like an ISO, would operate the transmission systems and develop procedures to manage transmission equitably. Each of the ISOs and RTOs have energy and ancillary services markets in which buyers and sellers could bid for or offer generation. The ISOs and RTOs use bid-based markets to determine economic dispatch ... Two-thirds of the nation's electricity load is served in RTO regions."[cv]

The U.S. has seven ISO/RTOs: ISO New England (ISO-NE), New York ISO (NYISO), PJM Interconnection (PJM), Midcontinent Independent System Operator (MISO), Southwest Power Pool (SPP), the Electric Reliability Council of Texas (ERCOT), and the California ISO (CAISO) (see Figure 17).

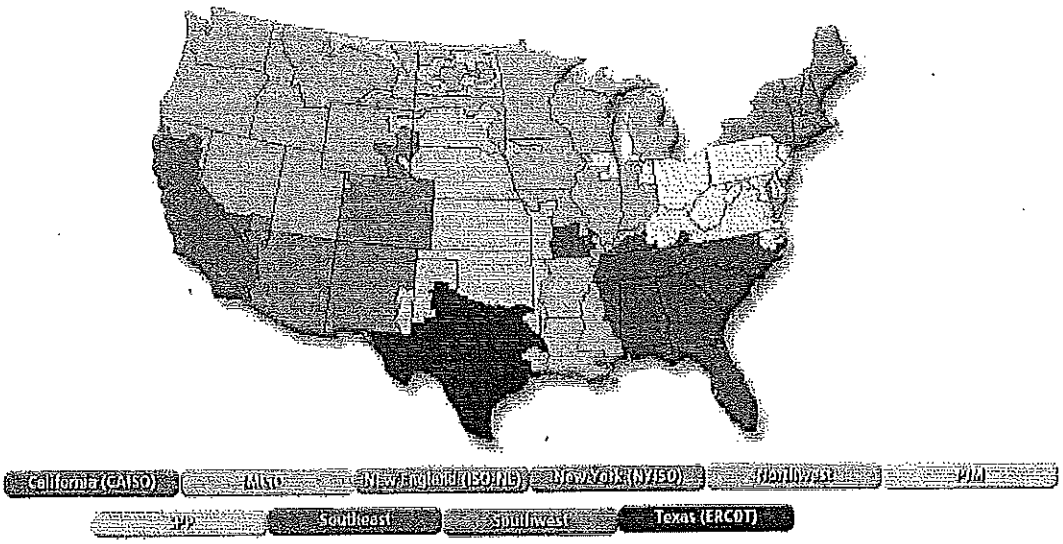



*Figure 17. U.S. ISOs and RTOs*[cvi]

These ISO/RTOs were designed primarily to maintain competitive markets, low electricity prices and transmission reliability. They were not designed to ensure resilience, fuel diversity, or fuel security.



AMERICAN OVERSIGHT

ISO/RTOs have a major effect on the nation's coal fleet because some 164,000 megawatts (MW) of coal-based generation — almost two-thirds of the fleet — are located in ISO/RTO footprints. Almost all of this coal-based capacity is located in four regions: MISO's footprint includes 63,000 MW; PJM 60,000 MW; SPP 26,000 MW; and ERCOT 15,000 MW. (The coal fleet in these four wholesale markets consumed some 460 million tons of coal in 2017, almost two-thirds of U.S. coal demand.) As a consequence, ISO/RTO market policies affect the competitiveness and economic viability of the coal fleet.

For a number of reasons, including market policies, 45,000 MW of coal-based generating capacity in ISO/RTO regions have retired.[cvii] An additional 17,000 MW in these regions are slated to retire over the period 2018 through 2020, of which 12,000 MW have been attributed to market conditions.[cviii] The regions with the most retirements through 2020 are PJM (32,000 MW); MISO (14,400 MW); ERCOT (5,700 MW); and SPP (4,400 MW).

Compensation in Wholesale Markets

Generally, ISO/RTOs provide compensation to electricity generators for capacity, energy, and essential reliability services (frequency regulation, voltage support and reactive power). However, ERCOT and SPP do not have capacity markets.

The existing coal fleet is competing with natural gas in many of these markets. In addition, various out-of-market subsidies and mandates can put dispatchable sources, such as coal, at a competitive disadvantage. For example, wind and solar will have received $36.5 billion in tax credits alone over the five-year period 2016–2020, according to the Joint Committee on Taxation.[cix,7] Wind and solar benefit from a Federal PTC. In the case of wind, the PTC allows wind energy sources to bid into markets at a zero or negative cost that suppresses prices for other electricity resources and increases the need for load following and ramping from coal units. Without the PTC, coal units might be dispatched more frequently, potentially reducing the amount of retirements.

The economic value of the PTC for renewable energy projects is significant as is evident in a recent decision regarding what was to be the largest wind farm in the U.S. In late July 2018, American Electric Power (AEP) cancelled its $4.5 billion Wind Catcher project when the Texas Public Utility Commission denied its approval saying it would not benefit Texas ratepayers. According to news reports,[cx] the project required timely approvals from jurisdictions in Arkansas, Louisiana, Oklahoma and Texas in order to complete the project by 2020 and qualify for 100% of the Federal PTC.

In addition to tax benefits such as the PTC, 29 states have renewable portfolio standards requiring that specific percentages of electricity sales come from renewables as detailed in Chapter 1. These percentages range from 10% in Wisconsin to 100% in Hawaii.

---

[7] For a more expansive Analysis of Federal Expenditures for Energy Development, 1950-2016, see http://misi-net.com/publications/EnergyIncentives-0517.pdf



AMERICAN OVERSIGHT

There are other out-of-market subsidies that disadvantage the coal fleet. For example, within PJM's 13-state footprint, 4 states — Northern Illinois, Pennsylvania, New Jersey and Ohio — have adopted or considered zero-emissions credit policies to subsidize existing nuclear plants. Subsidies allow renewable and nuclear generators to enter capacity auctions at prices below their operating costs, pushing down overall market prices and sometimes leading to power plant to retirements.

FERC Action

There are many actions that could be undertaken by the Federal Energy Regulatory Commission (FERC) to ensure that the services provided by the U.S. fleet of coal-based power plants are appropriately valued. FERC has evaluated price formation issues in competitive markets for nearly a decade. In 2014, FERC initiated a proceeding (Docket No. AD14-14-000) to examine price formation in organized markets to ensure that pricing rules established in regional transmission organization (RTO) and independent system operator (ISO) markets would satisfy four objectives: "(1) maximize market surplus for consumers and suppliers; (2) provide correct incentives for market participants to follow commitment and dispatch instructions, make efficient investments in facilities and equipment, and maintain reliability; (3) provide transparency so that market participants understand how prices reflect the actual marginal cost of serving load and the operational constraints of reliably operating the system; and (4) ensure that all suppliers have an opportunity to recover their costs." Subsequently, FERC directed each RTO/ISO to publicly provide a report regarding five price formation issues: (1) pricing of fast-start resources; (2) commitments to manage multiple contingencies; (3) look-ahead modeling; (4) uplift allocation; and (5) transparency.[cxi]

Since that order, FERC has continued to evaluate these issues in a number of different proceedings, most notably in Order No. 825, FERC revised "its regulations to address certain practices that fail to compensate resources at prices that reflect the value of the service resources provide to the system, thereby distorting price signals, and in certain instances, creating a disincentive for resources to respond to dispatch signals."[cxii] Despite FERC's action to date, price formation and market issues continue. As FERC further examines these issues, some of the proposed policy options include:

*Price Formation*. Among the policy options proposed by various organizations, FERC could examine and refine price formation in the RTO's through rulemaking or ordering tariff changes by the respective RTOs/ISOs. Potential considerations include:

- Allowing fuel-secure resources to set the locational marginal price when running (even if operating at their economic minimum operating levels).
- Eliminating negative pricing.



AMERICAN OVERSIGHT

- Minimum Offer Price Rule (MOPR): Establishing a price floor for fuel-secure resources in the energy or capacity markets. A price floor would guarantee that these resources are paid a rate that is adequate to cover their costs. Specific mechanisms could be developed in the individual markets so that they would be responsive to local needs and integrated with other policy goals.
- Requiring the value of tax and other subsidies to be imputed into the market bids of subsidized resources, thereby ensuring that subsidized entities are bidding at their actual unsubsidized cost.

*Essential Reliability Services*. FERC could ensure there are proper standards (building off of current NERC reliability standards and guidelines) and just and reasonable compensation for reactive power, frequency response and other ERS that support grid operations. Indeed, FERC has recently touched on this issue in Order No. 842, where it required "new large and small generating facilities, including both synchronous and non-synchronous ... to install, maintain, and operate equipment capable of providing primary frequency response as a condition of interconnection."[cxiii] In addition, FERC should consider whether there are additional ERS that will be needed to support the grid with increased IRE penetration.

*Capacity Market Reforms*. Current capacity markets were not structured to value externalities such as resiliency or environmental attributes. As a result of recent regulatory and market trends, some traditional capacity resources are not clearing the market. There are several potential mechanisms that FERC could consider to rectify this:

- Fuel Security Value Curve or reforms to the clearing of resources in capacity auctions based on onsite fuel characteristics or technology type.
- Consider a separate market construct that would incentivize capacity resources that have onsite fuel or dual-fuel supplies.

*Forward Resiliency Market*. Regions could conduct an auction-type program to ensure that each market has sufficient onsite fuel to supply the MWh of production needed over a specific period. In another vein, the Commission could implement new products in the markets, such as a product that compensates units for ramping or flexibility, or a "stand-by" product that would compensate resources for staying online.

*Demand Response Compensation Reform*. FERC could consider how overcompensating demand response resources may distort the generation mix and act appropriately.



AMERICAN OVERSIGHT

Specific Market Reforms

There have been increasingly serious discussions in energy policy circles about resilience because of the continuing retirement of large amounts of coal-based and nuclear generation, both of which provide fuel security and essential reliability services. While coal-based generation receives the same compensation as other generators for ERS, coal-based units are not compensated for the increased operating costs associated with being dispatched to provide load following and ramping services.

Fuel security is important to resilience because it enables the grid to absorb and recover quickly from manmade or natural disturbances that could have potentially disastrous consequences. Markets compensate reliability attributes, but not resilience attributes, such as fuel security. Further, markets do not incent investments in fuel-secure infrastructure.

The coal fleet maintains a large coal stockpile at each power plant. In 2017, the average coal-based power plant had an on-site coal supply ranging from 71 days to 104 days of coal burn.[cxiv] Coal stockpiles provide resilience against high impact, low frequency disruptions because on-site fuel supplies minimize the potential for fuel supply disruptions. By contrast, at least 40% of the nation's electricity resources are not fuel secure.[8]

The U.S. Department of Energy has highlighted concerns about coal and nuclear retirements in its "Staff Report to the Secretary on Electricity Markets and Reliability" and in a proposed "Grid Reliability and Resilience Pricing Rule" to compensate electricity sources that maintain a 90-day supply of fuel on site and provide essential reliability services.[cxv]

FERC terminated the proposed rule and initiated a new proceeding to define resilience and to evaluate the resilience of the bulk power system in wholesale electricity markets.[cxvi] FERC has proposed to define resilience as "the ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event." It is unclear what steps FERC might take as a result of this proceeding, and the timing of any such steps is unknown. In the meantime, coal retirements continue.

PJM. PJM (see Figure 18) is a useful case study of the need for market reforms because its footprint includes a relatively large coal fleet, it has substantial amounts of at-risk coal and nuclear generation, and it has a diverse fuel mix that relies mostly on nuclear, coal and natural gas.

[8] NERC indicates that only 27% of natural-gas-fired generating capacity built over the past two decades has dual-fuel capability. (Source: NERC "Special Reliability Assessment: Potential Bulk Power System Impacts Due to Severe Disruptions on the Natural Gas System," November 2017.) This means that roughly 275,000 MW of gas-fired generating capacity lack dual-fuel capability. In addition, renewable generating capacity totaled some 204,000 MW last year. Thus, approximately 409,000 MW of electric generating capacity lack fuel security. U.S. electric generating capacity last year totaled slightly more than 1 million MW. (Source: EIA AEO 2018)



AMERICAN OVERSIGHT

EXT-18-2615-G-000396

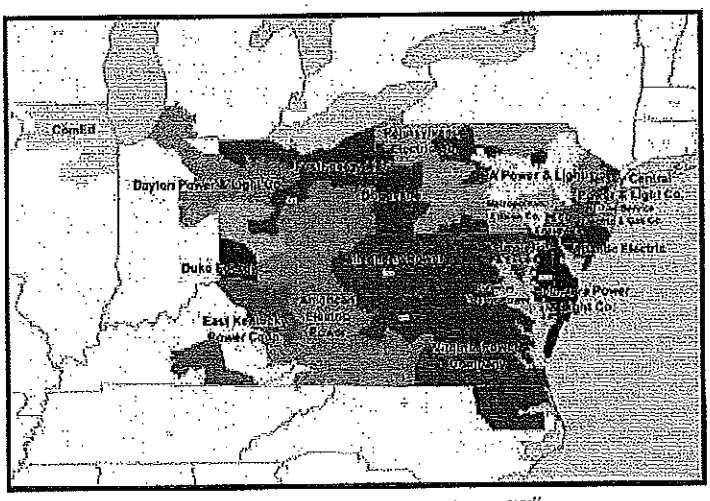



*Figure 18. PJM ISO Territory*[cxvii]

PJM had proposed tariff revisions to address price suppression caused by out-of-market payments. As PJM explained its situation:[cxviii]

*"Over the last few years, the integrity and effectiveness of the capacity market administered by PJM have become untenably threatened by out-of-market payments provided or required by certain states for the purpose of supporting the entry or continued operation of preferred generation resources that may not otherwise be able to succeed in a competitive wholesale capacity market. The amount and type of generation resources receiving such out-of-market support has increased substantially. What started as limited support primarily for relatively small renewable resources has evolved into support for thousands of megawatts (MWs) of resources ranging from small solar and wind facilities to large nuclear plants. As existing state programs providing out-of-market payments continue to grow, more states in the PJM region are considering providing more support to even more resources, based on an ever-widening scope of justifications ... These subsidies enable subsidized resources to have a suppressive effect on the price of capacity procured by PJM through its capacity market ... Out-of-market payments, whether made or directed by a state, allow the supported resources to reduce the price of their offers into capacity auctions below the price at which they otherwise would offer absent the payments, causing lower auction clearing prices. As the auction price is suppressed in this market, more generation resources lose needed revenues, increasing pressure on states to provide out-of-market support to yet more generation resources that states prefer, for policy reasons, to enter the market or remain in operation. With each such subsidy, the market becomes less grounded in fundamental principles of supply and demand."*

However, FERC rejected the PJM proposal[cxix] and, instead, is considering an alternative approach that could lead to market reforms.



AMERICAN OVERSIGHT

*Valuing Fuel Security*

Both PJM and ISO-NE are conducting fuel security studies because of the importance of fuel security to resilience. Fuel security enables the grid to absorb and recover quickly from manmade or natural disturbances that could have disastrous consequences. However, the attribute of fuel security is not valued in wholesale markets at the present time.

ISO-NE. ISO-NE defines fuel security as "... the ability of the system's supply portfolio, given its fuel supply dependencies, to continue serving electricity demand through credible disturbance events ... that could lead to disruptions in fuel delivery systems ... which could impact the availability of generation over extended periods of time." ISO-NE has an ongoing analysis of fuel security which it considers to be the region's most significant resilience challenge. ISO-NE is concerned that power plants in New England might not be able to obtain fuel, particularly in winter, because of coal, oil and nuclear retirements, constrained fuel infrastructure, and difficulty in permitting and operating dual-fuel generating capability.[cxx] So far, the ISO has concluded the region is vulnerable to the season-long outage of any of several major energy facilities.

PJM. According to PJM, "Fuel security focuses on the vulnerability of fuel supply and delivery to generators and the risks inherent in increased dependence on a single fuel-delivery system." PJM has initiated a three-phase effort to analyze and value fuel security.[cxxi] The PJM analysis will evaluate a dozen combinations of coal and nuclear retirements, as well as disruptions to fuel delivery systems. PJM plans to use the results to establish fuel-security criteria and then use markets to "allow all resources to meet those criteria." PJM expects to complete its fuel security initiative by May 2019.

The American Coalition for Clean Coal Electricity (ACCCE) commissioned a similar study by Quanta to illustrate the potential consequences of ignoring risks from accelerated coal retirements and fuel insecurity for the PJM grid.[cxxii] Quanta's modeling showed that when more coal-based generation retired prematurely and natural gas-fired generation experienced supply disruptions, the PJM grid could not meet reliability criteria for transmission security, resource adequacy, or both. Figure 19 below from the Quanta report shows that scenarios based on coal retirements and gas outages exceed resource adequacy criteria.



AMERICAN OVERSIGHT

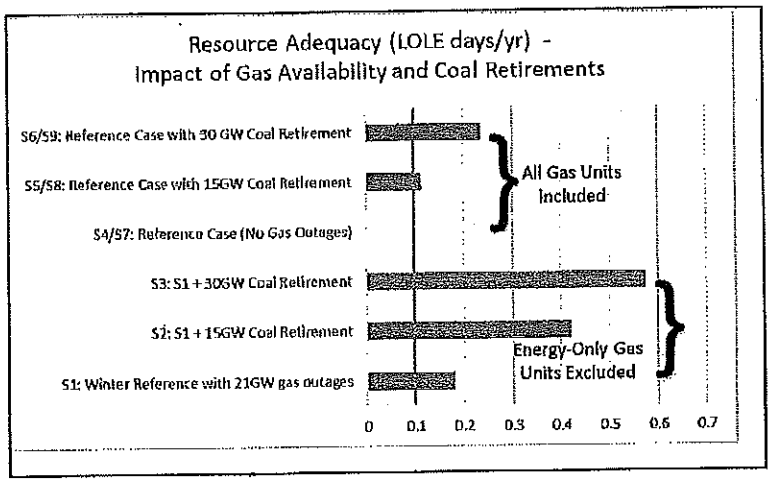



*Figure 19. Resource Adequacy: Impact of Gas Availability & Coal Retirements*[cxxiii]

Among other things, the Quanta study showed that PJM will lose its resilience to natural gas outages if coal retirements continue.



AMERICAN OVERSIGHT

## The Role of Technology in Optimizing the U.S. Coal Fleet

The U.S. boasts a coal-fueled fleet of power plants that have historically provided a source of reliable, affordable power. Maintaining this fleet is essential to ensure that the country can continue to provide reliable, resilient, affordable power through a diverse electric mix. To improve the competitiveness of the existing U.S. fleet there are many technology options available, including lowering the cost of fuel through advancing mining practices, increasing coal quality, improving plant efficiency and flexibility, reducing the costs of environmental retrofits, advancing carbon capture approaches that generate saleable $CO_2$ and identifying other options for additional revenue through new products from coal or coal byproducts.

### Reducing Fuel Costs

For a typical U.S. coal plant, delivered fuel cost accounts for the majority (about two-thirds) of the plant's O&M cost and an even greater portion (greater than 80%) of its variable cost, which is used to determine whether it dispatches ahead of or behind other sources of generation.[cxxiv] As such, upstream technologies that improve the efficiency and reduce the cost of mining, processing or transporting coal could play an important role in improving the competitiveness of the existing fleet by reducing delivered fuel costs, which would improve dispatch priority and reduce the wear and tear from cycling.

In the past, these advances helped to boost U.S. coal mining productivity more than sixteen-fold, from 601 tons per employee-year in 1900 to 9,932 tons per employee-year in 2000, and brought even greater improvements in workplace safety.[cxxv,cxxvi,cxxvii] However, while incremental technological enhancements have continued to be introduced, overall productivity in the U.S. coal mining industry has declined during the past 20 years (see Figure 20).[cxxviii]

The recent decline in productivity suggests that advances in coal mining technology have failed to keep pace as the most prolific reserves have continued to be mined out (i.e., mines are increasingly moving to reserves characterized by thinner coal seams, more challenging geological conditions and thicker overburden). In contrast, the introduction of horizontal drilling and hydraulic fracturing technologies have allowed previously uneconomic shale gas reserves to become a major part of U.S. natural gas production and driven a more-than thirty-fold increase in new gas well productivity in the Appalachian Region since 2007.[cxxix] A similar transformational change in coal mining technology would have major implications for the economic viability and utilization of the existing coal fleet.



AMERICAN OVERSIGHT

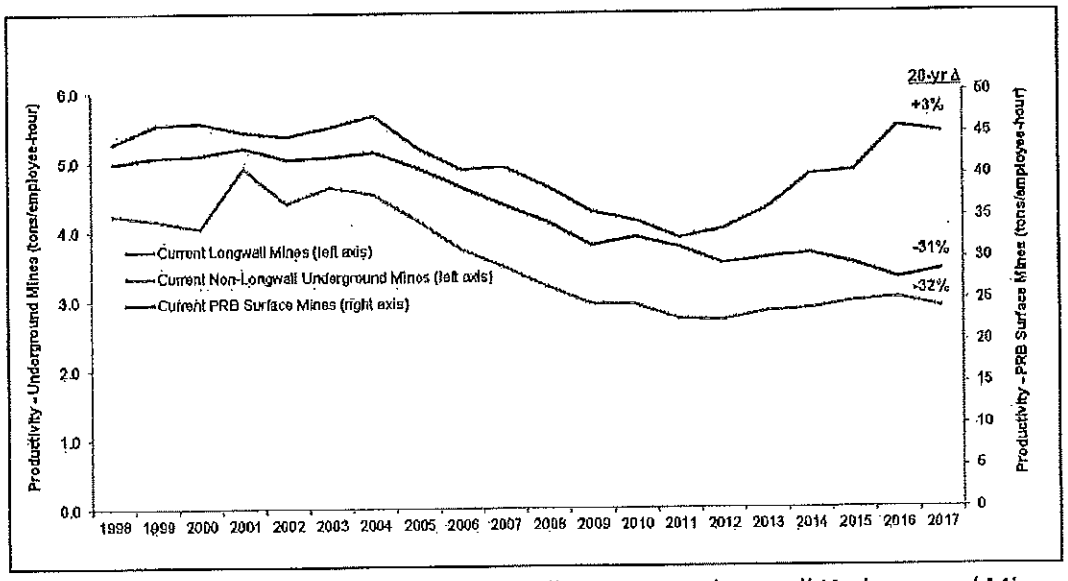



*Figure 20. Productivity Trends for U.S. Longwall Mines, Non-longwall Underground Mines and PRB Surface Mines in Operation as of 2017*

The National Research Council (NRC) studied upstream aspects of the coal industry and found that of more than $538 million spent by Federal government agencies for coal-related research and technology deployment in 2005, less than 10% was directed toward upstream aspects of the coal industry.[cxxx] The NRC recommended that "There should be renewed support for advanced coal mining and processing research and development ... The focus of this R&D should be on increased integration of modern technology in the extraction and processing phases of coal production, with particular emphasis on emerging advances in materials, sensors, and controls; monitoring; and automated mining systems."[cxxxi]

Opportunities for new technology implementation in coal mining and processing include automation and robotics, big data and advanced computing to improve mining productivity and efficiencies, fully remote mining technologies and advanced coal recovery and upgrading technologies. In underground coal mining, automated longwall shearer systems are offered commercially; these systems can boost efficiency by producing repeatable cuts, reducing the amount of rock that is mined with the coal, and reducing equipment wear and maintenance downtime.[cxxxii] There is a need to extend automation to continuous miners, which account for a majority of the labor and cost required in both longwall mines and room-and-pillar mines, and to develop improved technologies for detecting the horizon of the coal seam (which is still done visually by the operator, even in automated longwall applications).



AMERICAN OVERSIGHT

To highlight the magnitude of the opportunity, in general, for a typical continuous miner development unit in a longwall mine, less time is spent mining than is spent for routine and non-routine delays, providing a rich opportunity for improvements.[cxxxiii] Notably, R&D funding, testing and implementation of new technologies underground will require cooperation from the Mine Safety and Health Administration (MSHA) to expedite the review and approval of these technologies for underground use.

In surface mining, efforts in the area of automation have focused largely on haul trucks, which provide one of the greatest opportunities to reduce unit cost.[cxxxiv] However, EY notes that "This innovation has slowed. The first automated truck trials were 20 years ago, yet we still do not have a fully automated pit."[cxxxv] Automated haulage concepts could also be extended to underground mining applications.

There is an opportunity to take advantage of state-of-the-art digital technology, including consolidated data platforms, real-time analytics and optimization, advanced control systems, artificial intelligence and machine learning, and predictive maintenance to improve decision making and reduce downtime across the many interdependent processes involved in a mining operation. With respect to underground mining operations, continued development of wireless communication technologies capable of operating in an underground environment will be important for enabling the implementation of these digital technologies.[cxxxvi] Opportunities for application of big data and advanced computing technologies also extend to coal preparation and transportation operations. EY notes that companies that successfully use data outperform their peers by 20%.[cxxxvii]

Fully remote mining technologies would represent a transformational change in coal production. Leveraging experience in oil and gas horizontal drilling could present a novel approach for extracting coal from deep (>2,000 ft) seams, potentially reducing the cost of mining and providing access to high-quality resources that are uneconomic to mine with conventional technologies.[cxxxviii] However, further proof of this concept is needed.

Coal Upgrading

There are material opportunities to further develop coal washing, beneficiating and upgrading.[cxxxix] These technologies have the potential to reduce delivered fuel costs (on a $/mmBtu basis), reduce emissions, improve efficiency and reduce variable O&M costs at the power plant.

For example, when high-moisture lignite coals are burned in utility boilers, about 7% of the fuel heat input is used to evaporate fuel moisture.[cxl] The use of high-moisture coals results in higher fuel usage, higher flue gas flow rate, lower plant efficiency, and higher mill, coal pipe and burner maintenance requirements compared to that of the low-moisture coals such as eastern bituminous coals and upgraded coals. Despite problems associated with their high-moisture content, lignite and sub-bituminous coals from the western U.S. are attractive due to their low cost, lower content of sulfur and mercury (Hg), and lower $NO_x$ emissions.



AMERICAN OVERSIGHT

In terms of coal upgrading, there is sufficient opportunity for U.S. low-rank coals, which have moisture contents ranging from 15% to 30% for sub-bituminous coals and from 25% to 40% for lignites. Coal upgrading processes at the power plant, such as DryFining™ (DOE Award Number DE-FC26-04NT41763) and WRITECoal™ (DOE Award Number DE-FC26-98FT40323), improves the heat content of low ranks coals, upgrading lignite from 7,503 Btu/lb to 10,397 Btu/lb and upgrading Powder River Basin (PRB) subbituminous coal from 8,830 Btu/lb to 11,329 Btu/lb.[cxlii] The extracted water can be used within the power plant, thereby reducing water withdrawal and consumption from local water supplies by 20% to 25% for water-cooled plants The resulting efficiency improvement for a nominal 600 $MW_e$ plant is significant in that it results in a net power increase of 30 $MW_e$ for lignite and 34 $MW_e$ for PRB coal.[cxliii] Increased efficiency also lowers criteria emissions on a MWh basis, in addition to reducing $CO_2$. Table 2 shows what was accomplished by coal drying and cleaning on North Dakota lignite. The amount of emission reduction and efficiency improvement gained is dependent on the amount of thermal heat brought to the process.

*Table 2. Results of the Dry Fining Process*[cxliii]

| Component | Amount of Reduction | Explanation |
|---|---|---|
| Fuel $H_2O$ | 25% | Dries lignite from 38% to 29% moisture, improving HHV from 6,100 to 6,800 Btu/lb |
| $SO_2$ | 54% | Segregation of ash minerals, plus improved collection efficiency |
| $NO_x$ | 32% | Reduced volumetric release rate, improved fineness and air and fuel distribution to furnace |
| $CO_2$ | 4% | 4% improved cycle efficiency |

Coal preparation and beneficiation processes also offer value for higher rank coals. Many bituminous coals, such as coals from the Appalachian and the Illinois Basins, are washed in preparation plants to remove impurities (e.g., ash) and improve heat content. Washed coals, however, need to be dewatered. Recently, there has been a technology push to improve recovery of coal from the wet, fine coal refuse streams produced by these preparation plants, which have traditionally been disposed in slurry impoundments, and instead use those streams to produce high-quality coal or carbon products for use as power plant fuel or in alternative applications.[cxliv,cxlv,cxlvi] These emerging processes have the potential to improve economic and environmental performance at both the coal mine and the end-use power plant.

In addition, mercury, arsenic and selenium heavy metals removal can be achieved to improve multi-pollutant emissions control performance and cost. Figure 21 shows the reduction of mercury achieved during bench-scale testing. Likewise, for PRB coal, arsenic was reduced from 4.8 parts per million detected (ppmd) to 1.8 ppmd and from 1.0 ppmd to 0.8 ppmd for selenium. A reduction in $NO_x$ emissions up to 41.3% for lignite and 23.2% for PRB coal was also observed.[cxlvii]



AMERICAN OVERSIGHT

EXT-18-2615-G-000403

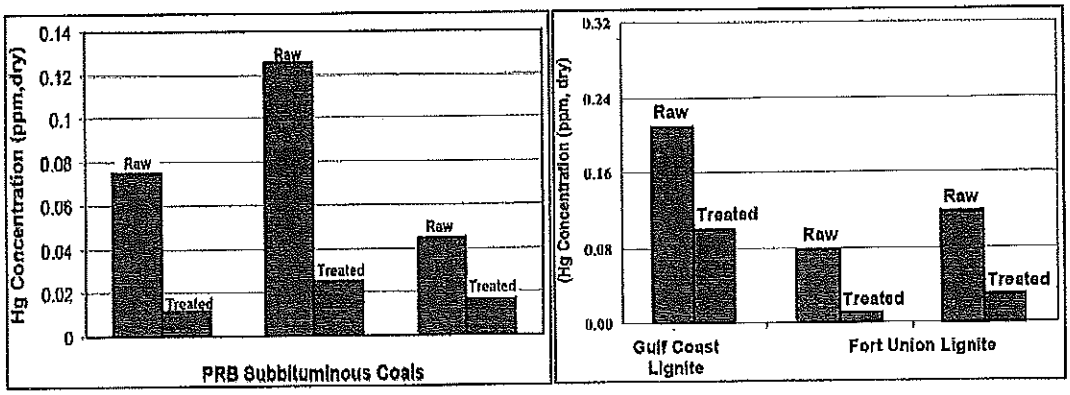



*Figure 21. Bench-scale Mercury Removal Test Results Beneficiated Lignite and PRB Coals*

Coal beneficiation processes provide significant performance, reliability and O&M benefits to the plant, as well as improving the potential fuel flexibility of the plant. Increased fuel flexibility directly benefits the busbar generation cost and dispatch importance of the power plant, which results in potential life extension of the valuable asset.

Improving Plant Efficiency

Coal plant efficiency improvement has proven to be one of the most vexing topics over the last decade. The topic is both diverse and complex. New technologies, such as high efficiency, low emissions (HELE) plants, offer dramatically improved efficiency and lower $CO_2$ emissions versus subcritical coal plants. For existing plants, there are substantial differences in potential improvements due to differences in in technology, vintage, operational duties, environmental compliance equipment and coal sources. Finally, regulatory uncertainties, especially around New Source Review, have limited the ability of owners of existing plants to aggressively pursue energy efficiency improvement opportunities.[9] In spite of these challenges, energy efficiency improvement remains a viable means to improve the competitiveness of and reduce emissions from coal-based power. Retrofit and repowering options are discussed below.

Retrofits. For existing coal plants, the degree to which efficiency improvements can be realized is largely a function of level of capital expenditures made to either refurbish or in some cases upgrade existing plant systems. Aging plants, uncertainty in role/length of remaining service and lack of priority in maintaining optimal plant efficiency mean that most, if not all, coal plants would have substantive capability to realize efficiency improvement. There is no single formula that can be applied across all plants and, hence, the cost/benefit associated with improvements needs to be factored into such decisions.

[9] As noted in the policy section of this chapter, NSR reform has been proposed as part of the EPA's Affordable Clean Energy plan.



AMERICAN OVERSIGHT

EXT-18-2615-G-000404

Without substantial capital investment, improvements on the order of 1% to 2% can often be realized by tighter operational control of the plants and use of performance optimization tools/processes and plant tuning. Substantially higher improvements, on the order of 4% to 6% in efficiency gains, can generally be achieved if business-justified (acceptable cost/benefit ratios) capital investment is made. Plant improvements can also target ramping, load range or other factors that have the potential to add value to the plant.

Efficiency improvement opportunities can be classified, generally, into heat rate improvements for boiler/air systems, for turbine/condenser and via improved controls. The degree of improvement will vary by equipment present, its condition, and plant operating conditions, and will require a pragmatic plant condition and upgrade assessment. Fortunately, significant effort has been carried out to define such programs. Specifically, data analysis conducted by NETL and a consensus of selected industry experts indicate that this opportunity is technically and economically achievable, but will require leadership from power plant owners and operators and commitments from regulators, vendors, federal agencies, etc.[cxlviii]

Audits or other methods can be applied to validate the sources and magnitude of efficiency improvements to be realized; a representative cost/benefit analysis is shown in Figure 22. As can be seen from the figure, targeted areas for capital investment can be broad, and include the boiler, turbine, air/gas handling and auxiliary systems. Combustion optimization systems, performance management systems and advanced monitoring and diagnostics systems enable more efficient operations and optimize fuel/gas/air/sootblower volumes.

Some newer and emerging opportunities may be able to improve efficiency or reduce power plant costs without major capital investment. For example, artificial intelligence and/or predictive maintenance enabled by big data analysis, etc., could help optimize plant operations. These options could be especially important when plants are cycling more than what they were originally designed to do.



AMERICAN OVERSIGHT

| Project Name | Capital Cost | B/C Ratio | B/C Ratio Rank |
|---|---|---|---|
| Circulating Water Pump Refurbishment | Low | High | 1 |
| Sootblowing Steam Source | Low | High | 2 |
| Coal Mill Inerting Source | Low | High | 3 |
| Add Condensate Polishing | Medium | High | 4 |
| HP/IP/LP Turbine Upgrade | High | High | 5 |
| Coal Mills Replacement | High | High | 6 |
| Boiler Feed Pump Refurbishment | Low | Moderate | 7 |
| Helper Cooling Tower Replacement & Pumps | Medium | Moderate | 8 |
| Replace Flame Scanners | Low | Moderate | 9 |
| VFD's for Forced Draft Fans | Medium | Low | 11 |
| Air Heater Overhaul | Medium | Low | 10 |
| Replace Air Preheat Coils | Low | Low | 12 |
| VFD's for Induced Draft Fans | Medium | Low | 13 |
| Alternate Air Heater Overhaul | Medium | Low | 14 |
| Alternate Air Preheat Coils Modification | Medium | Low | 15 |

*Figure 22. Coal Power Plant Efficiency Audit Results*

*Repowering.* NETL has recently studied the prospect of repowering coal-based power plants that have invested in full air pollution control equipment, but that have a lower operating efficiency.[cxlix] The study assumes that a power plant boiler, turbine and other steam cycle components could be replaced while continuing to use the existing air pollution control equipment and electricity generating and transmission infrastructure. In its study, NETL found that a repowering would cost about half that of building a new coal-based power plant at a greenfield site. NETL concluded that there were no technical limitations to a repowering. However, there are likely regulatory hurdles, such as meeting New Source Performance Standards (a regulation under review by EPA) that would need to be better understood and addressed before any such repowering could occur. Still, this represents an important opportunity to continue to rely on existing infrastructure assets while investing in a new steam cycle that could be more competitive and offer lower emissions than the equipment it replaces.

Improving Flexibility

With the rapid increase in IRE generation, there is significant pressure on existing dispatchable coal resources to meet load and balance intermittency. In light of projections that IRE penetration will increase significantly in the coming years, the severity of this problem is expected to increase precipitously. While new power plants can be designed to be more flexible, there are some technologies that can assist the existing fleet to meet the needs of a diverse energy mix that includes greater IRE penetration.



AMERICAN OVERSIGHT

While the existing coal fleet is presently able to deliver variable output to stabilize the grid, this comes at a cost in terms of lower plant efficiency, higher maintenance expenses and shorter life expectancy. Plant cycling results in 1) increased capital expenditures for component replacement, 2) increased routine O&M costs due to increased wear and tear, 3) lower availability due to increased failure rate and outage time and 4) higher fuel consumption during startup and shutdown due to inefficient heat transfer and non-optimum heat rate.

EPRI has described[d] the damage mechanisms associated with conventional coal power plant cycling, and has also made recommendations for improving plant management, operation, monitoring, design, staff levels and training to optimize plant life cycle costs. There are some changes that can be made to power plants to improve their ability to cycle. EPA, in its recently proposed Affordable Clean Energy plan, has included variable frequency drives in its list of potential Best System of Emissions Reduction (BSER). Application of this technology could improve flexibility and improve efficiency as the existing coal fleet as it is increasingly required to ramp.

Nonetheless, with the rapid growth of wind and solar installations, more aggressive measures are needed to ensure the stability of the grid. A common misconception is that the challenges of IRE can be addressed with battery power storage. The impracticality of this can be understood by evaluating the economics of the Tesla battery pack installed at the Neoen Wind farm in Australia, where the cost of electricity storage is ~$430/kWh.

A potentially lower-cost alternative to battery storage is thermal energy storage (TES) which utilizes steam turbine assets combined with thermal storage technologies. Depending on the storage technology, capital costs can be on the order of $100/kWh, a factor of three to four less than for Li-ion batteries.

The concept behind TES is somewhat analogous to a hybrid electric vehicle in that it allows the coal-based power plant to continuously operate at maximum efficiency, reducing the damaging impacts of cycling while storing energy for later use during periods of high demand. This approach to storage should be considered prior to decommissioning of coal plants, especially when decommissioning of one plant could lead to increased cycling for another, newer unit at the same site. For example, often a coal unit may be retired, while adjacent existing units are newer and more efficient, and have modern environmental controls. Under these conditions, rather than facing the damage and costs associated with cycling the newer units, TES can be employed in combination with the old (to be decommissioned) steam turbine.

TES is an established technology that has been applied for utility scale concentrated solar power (CSP) to allow for power generation when sunlight is not available. CSP systems typically use a molten-salt mixture to store high-temperature heat during the day for subsequent steam generation in the evening hours. Materials other than phase-change materials are also possible, e.g., concrete and sand.



AMERICAN OVERSIGHT

A recent EPRI study investigated the economic feasibility of using various TES systems to facilitate flexible dispatch of electrical power from fossil plants.[cli] This study concluded that TES can be a more cost-effective approach to stabilizing the grid than adding gas turbine peaking units or batteries, and could improve the competitiveness of the coal-based power fleet if it was utilized in a way that reduced the frequency and rate of rapid ramping (see Figure 23).

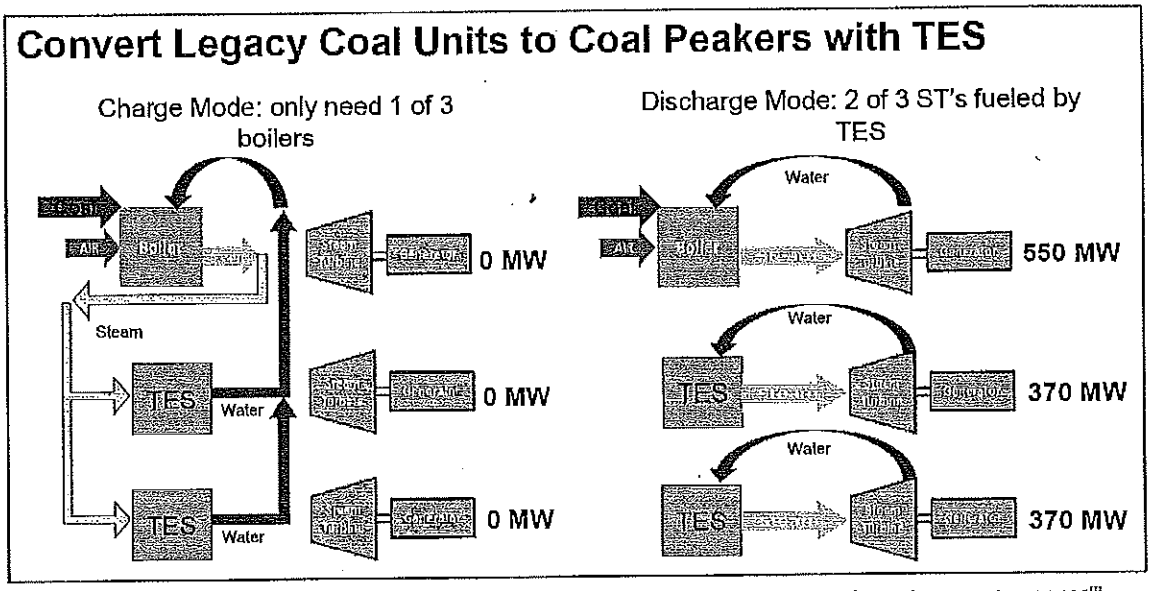



*Figure 23. Charge and Discharge Mode for Coal Units Converted to Coal Peakers Using TES[clii] (used with permission from EPRI)*

Notably, other forms of energy storage could also be integrated with the existing coal fleet. Pumped hydro, batteries and any other option for energy storage could be integrated with the existing coal fleet or onto the grid, potentially reducing the frequency and rate of ramping.

Reducing the Cost of Environmental Retrofits

Today's coal-based electric generating units have successfully controlled emissions such as $SO_2$, $NO_x$, PM, mercury and other air toxics to meet regulatory requirements under the Clean Air Act, the MATS and other regulations. The economic competitiveness of coal-based electric generating units could be improved through the development of technologies to enhance efficiency and lower operating costs of air emissions control systems.

For example, new $SO_2$ scrubber designs that reduce the energy penalty of scrubbing (e.g., by reducing pressure drop across the scrubber), new reagents and additives which improve scrubber reactivity and scrubbing chemistries that produce valuable byproducts, represent potential avenues for plants to decrease operating costs associated with $SO_2$ controls.



AMERICAN OVERSIGHT

Likewise, similar gains could be made with improved $NO_X$ control technologies with lower capital and operating costs as well as reduced sensitivity to the composition of the coal ash. Improvements in the systems to control flue gas impurities, such as $SO_X$, $NO_X$, and PM, can also benefit performance of $CO_2$ capture systems by reducing the degradation of $CO_2$ solvents and adsorbents.

In terms of water discharge from coal-based power plants, the Effluent Limitation Guidelines for Steam Electric Generating Plants is currently pending reconsideration by the EPA. The rule published in 2015 set requirements for the discharge of arsenic, mercury, nitrogen and selenium in wastewater streams from FGD processes; it also required zero-discharge of pollutants from bottom ash transport water and addresses other wastewater streams. EPA estimated in 2015 that 181 of the nation's steam electric generating stations (all of which are coal-based power plants) would need to make new investments to comply with the rule.[cliii] The Office of Management and Budget (OMB) prioritizes the rule as "economically significant",[cliv] with the EPA estimating annual compliance costs for the final rule at $480 million per year.[clv] DOE-NETL has funded programs to improve effluent water management at coal-based electric generating plants, although funding amounts have historically been modest.[clvi]

There may be opportunities in both the areas of air emissions and water effluent to reduce the technology cost associated with meeting environmental standards. Existing coal-based power plants with limited remaining life are sensitive to the payback periods for investment in new technologies. There is a role for the Department of Energy to reduce the cost of new technologies and to promote innovative financing opportunities so that aging plants can adopt the new technologies that are being developed in the U.S. and around the world.

Carbon Capture Opportunities

CCUS could play a critical role in reducing the number of coal-based power plant shutdowns, by providing retrofit solutions with improved operational economics and near-zero emissions. This would be the case if the costs for CCUS can be lowered and/or revenue from $CO_2$ sales can be increased to the point at which CCUS projects become profitable. Recently there has been considerable progress in CCUS, with the commissioning and successful operation of the Petra Nova facility for over one year. However, this is the only full-scale CCUS project in the U.S. coal fleet. To reduce the costs associated with $CO_2$ capture and close the gap with potential sources of revenue by using the captured $CO_2$, many more such projects are needed – achieving technical advances through learning-by-doing, improved financing opportunities, etc.



AMERICAN OVERSIGHT

Having multiple CCUS technologies commercially available would spur competition and be beneficial for the coal fleet; no single technology solution is likely to fit all the different types of plants. Currently in the U.S., only one technology has been demonstrated at the commercial scale, although many are ready for demonstration. For example, oxy-combustion technology has been available for demonstration since 2010, but has not been tested at scale in the U.S.

The demonstration of CCUS technologies on a commercial scale plant is essential in order to move to commercial deployment. However, given the financial scope of a CCUS retrofit commercial scale demonstration project, and risks for the private sector and financial community, government support is essential for demonstration of new CCUS technologies. Grants, similar to the $190 million provided to the Petra Nova project, are a critical tool for advancing other first-of-a-kind demonstrations. The lack of additional government support for large-scale projects has impeded additional CCUS deployment.

Time is of the essence for the DOE to initiate efforts for new CCUS demonstration projects, in part because the reform of the 45Q tax credit represents an important opportunity to enhance the economics for early-mover projects. Given the large number of coal-based power plants in close proximity to EOR opportunities across the U.S., CCUS deployment could be extensive, once successfully demonstrated. Demonstrations will help reduce costs and further deployment of CCUS technologies. The window for claiming the 45Q tax credit requires construction to begin before the sunset date of January 1, 2024, which may act as a limiting factor for broad application. Further deployment and advancement of CCUS technologies will pave the way for CCUS opportunities well into the future.

Rare Earth Elements

Rare earth elements (REE) are necessary materials in an incredible array of consumer goods, energy system components and military defense applications. Major market segments that rely on REE-based products or technologies include health care, transportation and vehicles, lighting, renewable energy systems, communications systems, audio equipment, military defense technologies and modern electronics. However, the global production and entire value chain for rare earth elements is dominated by China; the U.S. is currently completely reliant on imports of these critical materials.

There are numerous challenges associated with pursuing alternative sources of REEs, such as traditional mineral ores. Chief among these is that the content of the most critical and valuable of the REEs are deficient, making mining for these materials uneconomical. Further, the supply of these most critical rare earths is almost exclusively produced in China from a single resource that is only projected to last another 10 to 20 years. As a result, the U.S. currently considers the rare earths market an issue of national security, and accordingly, it is imperative that alternative domestic sources of rare earths be identified and methods developed to produce them.



AMERICAN OVERSIGHT

Recently, coal and coal byproducts have been identified as one of these promising alternative resources.[clvii] DOE is actively supporting studies to both characterize U.S. coal feedstocks for assessing the feasibility for REE recovery and to develop ways to improve their extraction.[clviii] While REEs are used in relatively small volumes, they could provide a secondary source of revenue for coal mines, or slightly boost consumption, which could potentially lower fuel costs and thus benefit the competitiveness of the existing fleet.

Boosting Revenue by Co-locating Other Coal Uses

New markets for coal are being pursued worldwide for various applications. China, Korea, Japan and South Africa are already pursuing conversion of coal to synthetic oil, transportation fuels hydrogen and industrial chemicals. In the U.S., efforts are also underway to convert coal into advanced materials, such as carbon fibers, that can be used in aerospace, infrastructure, automotive and energy applications.[clix]

In the U.S. there are potential opportunities to co-locate new technologies for processing coal at existing power plants and to enhance the use of U.S. coal in markets beyond those for power generation. These new markets for coal include coal conversion (coal to liquids, coal volatiles directly to transport fuel, coal to gas, coal to chemicals); carbon engineered products (value-added non-Btu products); REEs; methanol; and biotechnology approaches (agriculture, liquid fuels) among others.

In all instances, the coal conversion process itself requires electricity, providing the existing plant with a new dedicated customer. In some instances, the conversion process itself will use electricity as the primary heat input to disassociated atoms for recombination into coal resins (coal tar).

RD&D Recommendations from the CURC-EPRI Roadmap

As noted earlier in this report, coal plants are being called upon in today's markets to operate more flexibly in a range of cycling modes as power generators expand their use of IRE. This is resulting in units operating at much lower capacity utilization factors than originally designed as a baseload system. The consequences of the lower capacity factor result in greater complexity in managing the numerous sub-systems within the power plants and it can be economically challenging for those units to recover costs in some markets. Operating in a flexible mode also results in significant wear and tear, which could compromise these units in the future if research is not undertaken to understand and remedy the impacts of rapid and frequent cycling.



AMERICAN OVERSIGHT

The CURC-EPRI Roadmap[clx] identifies a comprehensive research program for addressing these impacts on existing coal and gas power generation systems. This includes RD&D to provide:

- Improved technologies to reduce the cooling water consumption
- Improved approaches to treat power plant water effluent and manage byproducts
- Improved criteria emissions control systems, capable of performing well (i.e., maintaining high capture efficiencies) on units with flexible modes of operations
- Improved ability to operate with different fuels, such as biomass co-firing
- Improved net plant efficiency through combustion optimization, advanced controls, the use of advanced topping or bottoming cycles and waste-heat utilization
- More reliable operation for units operating in "cycle mode" by developing improvements in welding and component fabrication using new materials and by providing improved diagnostic techniques, including better sensors and controls for early identification of "wear and tear" problems
- Developing advanced (high-temperature-tolerant) materials for units undergoing replacement of major subsystems
- Demonstration of A-USC components for possible retrofit to improve efficiency, capacity factor and reliability of existing power plants

The Roadmap does not specifically recommend $CO_2$ capture technology development tailored for existing units, but notes that many types of $CO_2$ capture technologies designed for new facilities would also be practical for existing fossil power plants if RD&D can sufficiently reduce costs and mitigate significant negative impacts on plant efficiency. Consideration of $CO_2$ capture on existing units not only must take into consideration costs, but other site-specific issues such as access to EOR or other geologic storage options, and the amount of space available onsite to accommodate the equipment to capture and transport $CO_2$.

## Conclusions

Although there are many challenges facing the existing U.S. coal fleet, it continues to play an important role in the current diverse energy mix, A wide range of policy mechanisms, market changes and technology solutions exist or could be developed that could enable this fleet to continue to play an important role in the U.S. electricity system well into the future. DOE has the ability to take action and/or influence many of the key areas discussed throughout this section that would benefit the nation's coal fleet.



AMERICAN OVERSIGHT

## Chapter 4: Key Recommendations and Findings

The existing U.S. coal fleet offers unique benefits and value in the nation's interests that must be valued or it will continue to erode. Accordingly, the National Coal Council advocates a four-step approach –

**ASSESS | SUPPORT | REFORM | RENEW**

### Strategic Objectives

The key strategic objectives of this approach are:

**ASSESS** the value of the coal fleet.

Steps must be undertaken to ensure that the reliable and resilient attributes of U.S. coal generation are acknowledged and that the nation's existing coal fleet is equitably compensated for the services it provides. Firm, dispatchable power must remain a sustained part of the nation's fuel mix; targeted minimum levels for key fuel sources should be strongly considered.

**SUPPORT** efforts to retain continued operation of the existing coal fleet.

By ensuring compensation for all the attributes of the existing coal fleet, put an end to the precipitous retirement of dispatchable coal. This can provide an opportunity to assess future power demand scenarios and the ability of various energy resources to realistically, reliably and resiliently meet those needs. Economic and regulatory support are needed to stem the tide of plant retirements and ensure the sustainability of a diverse energy portfolio.

**REFORM** the regulatory environment.

The efficiency, environmental performance and cost-competitiveness of the existing U.S. coal fleet can be enhanced with reforms to various regulatory mandates. Environmentally permitted investments should be afforded the opportunity to recoup value over their useful life and enable the power grid to take full advantage of existing resources. Just compensation is warranted should that opportunity be denied.

**RENEW** investment in coal generation.

Optimizing existing coal fleet assets requires a targeted Research Development, Demonstration & Deployment (RDD&D) program focused on increasing the efficiency, flexibility and competitiveness of the fleet. Public funding and support mechanisms, complemented by public-private partnerships will ensure grid reliability, dispatch effectiveness and power system resilience.



AMERICAN OVERSIGHT

## Tactics

Specific actionable items recommended to achieve strategic objectives are detailed here. Tactical recommendations are framed to specify WHAT must be done and WHY.

**ASSESS** the value of the coal fleet.

- Establish a uniform definition of grid resilience.
  *A standardized definition of resilience is needed in order to assess and compensate the value of various energy resources and the range of grid services they supply.*

- Assess the fuel security of ISOs/RTOs.
  *Fuel security is critical to grid resilience as it enables the grid to absorb and recover quickly from manmade or natural disruptions in the power system.*

- Establish quantitative metrics against which to evaluate grid resilience.
  *Resilience metrics can be used to assess and equitably compensate electricity generators for services provided.*

- Evaluate the experience of other nations regarding the value of firm, dispatchable power and challenges associated with intermittent renewable energy deployment.
  *Lessons learned from other nations are instructive in defining pathways to a stable and sustainable energy future for the U.S.*

**SUPPORT** efforts to retain continued operation of the existing coal fleet.

- Provide appropriate economic and regulatory incentives to stem the tide of plant retirements.
  *Acknowledge the significant and disproportionate impact on the existing U.S. coal fleet of market distortions, regulation and regulatory uncertainty.*

- Establish an environment that values and compensates diversity.
  *Resource diversity is critical to maintain a reliable and resilient grid, especially in the event of manmade and natural high impact-low frequency events.*

- Support mechanisms to immediately compensate the U.S. coal fleet for the essential services it provides.
  *Acknowledge the explicit economic, dispatchable and grid-resilient value provided by the existing U.S. coal fleet.*



AMERICAN OVERSIGHT

**REFORM** the regulatory environment.

Policy Reforms

- Reform New Source Review rules.
  *Eliminate regulatory uncertainty and reduce litigation risks for utilities seeking to implement energy efficiency measures and enhance operational flexibility solutions at coal plants.*

- Reform the Public Utilities Regulatory Policies Act of 1978.
  *Reforms will more realistically reflect today's electricity landscape and ensure utilities are not forced to purchase power they do not need.*

- Revise the 2015 Coal Combustion Residuals ruling.
  *Reforms could provide states and utilities with flexibility in how CCR is managed.*

- Support changes to Effluent Limitation Guidelines establishing wastewater treatment standards.
  *Changes would support standards that could be more realistically and cost-effectively met with technologies commensurate with the resultant health and welfare benefits realized.*

- Advance $CO_2$ storage laws and regulations on Federal and tribal lands.
  *Regulations could facilitate deployment of CCUS technologies by existing coal plants located near Federal and tribal lands.*

- Engage EPA as it progresses the Affordable Clean Energy plan.
  *Provide technical guidance to EPA on the potential technologies and the role of efficiency gains and flexibility improvements that could reduce emissions from the existing fleet.*

Market Reforms

- Support FERC capacity market reform initiatives.
  *Provides opportunities to ensure that resilience, fuel diversity and/or fuel security are valued along with low electricity prices and transmission reliability.*

- Support FERC initiatives to refine ISO/RTO price formation.
  *Allows fuel-secure resources to set locational marginal prices, eliminate negative pricing, establish a price floor for fuel-secure resources and require the value of tax and other subsidies to be imputed into market bids of subsidized resources.*

- Support FERC efforts to establish and enforce standards for essential reliability services.
  *Allows for a more realistic assessment of attributes, such as fuel security, that support a reliable and resilient grid.*

- Support efforts by ISOs/RTOs to conduct assessments evaluating fuel security and resilience of the bulk power system.
  *Assessments provide critical data on the resilience of wholesale electricity markets.*



AMERICAN OVERSIGHT

Tax Reforms

- Support legislative initiatives to provide temporary tax credits to cover a portion of O&M expenses for existing coal plants.

  *Offsetting a small portion of O&M expenses for the existing coal fleet is estimated to prevent the retirement of as much as 24,000 MW of coal-based generation.*

- Support legislative initiatives that would complement and further incentivize utilization of the 45Q tax credit for existing coal plants, including Master Limited Partnerships and Private Activity Bonds.

  *The recent 45Q tax credit reform provides an important Federal incentive encouraging private investment in the deployment of carbon capture technologies. Additional Federal incentives would complement 45Q and enable more capture projects to become commercially feasible.*

- Support changes to the 48A tax credit, such as removing the efficiency increase requirement that would facilitate retrofits of CCUS technology to the existing coal fleet.

  *In its current form, the tax credit does not incentivize CCUS on new or existing coal plants.*

**RENEW** investment in coal generation.

- Support the development and deployment of the following technologies.

  *Government and public-private partnership support for advanced coal technologies enhances the competitiveness, efficiency and environmental performance of the existing coal fleet.*

  - Advanced coal mining and processing technologies.

    *Renewed R&D initiatives would enhance productivity and cost-competitiveness of coal supply. Working in concert with MSHA would help expedite the review and approval of these technologies.*

  - Coal beneficiation technologies, including coal washing and upgrading.

    *Advanced R&D initiatives would improve power plant performance and reduce operating costs.*

  - Retrofitting and repowering technologies.

    *Various technologies and processes could be deployed at existing plants to improve energy efficiency and coal plant cost competitiveness.*

  - Energy storage technologies.

    *Various storage technologies – notably Thermal Energy Storage – could potentially allow coal-based power plants to continuously operate at maximum efficiency while reducing the damaging impacts of cycling.*



AMERICAN OVERSIGHT

- Advanced air emissions control system technologies.
  *Enhancements to existing technologies could improve efficiency and reduce costs associated with controlling $SO_2$, NOx, PM and Hg.*

- Water effluent technologies.
  *R&D initiatives are needed to reduce technology costs associated with meeting environmental standards.*

- Carbon capture technologies/projects, including demonstrations at commercial scale retrofitted to existing coal-based units.
  *Only one CCUS retrofit project is operational in the U.S. today. More projects would reduce costs associated with $CO_2$ capture, improve project financing opportunities and advance technical knowledge.*

- Rare earth element extraction from coal and coal byproducts.
  *R&D initiatives could advance the development of and reduce the costs associated with REE extraction, providing a secondary source of revenue for coal producers/consumers and enhancing the cost-competitiveness of the existing fleet.*

- New advanced markets for coal technologies such as coal conversion, carbon engineered products and other coal-derived value-added products.
  *Co-locating coal-to-X projects at existing coal plants could support the economics of both facilities.*

- Technologies identified in the CURC-EPRI Roadmap that enhance the efficiency and cost-competitiveness of the existing coal fleet.
  *Provides a focused and comprehensive R&D program to address the many and varied coal generation system components in concert.*

- Promote education and awareness about the water-energy nexus.
  *Education enhances national water planning processes and facilitates a more reasoned approach to decision and policy making.*

- Promote initiatives to enhance transparency about the inherent costs and benefits associated with all U.S. energy resources.
  *Provides a more reasoned approach to energy decision and policy making.*



AMERICAN OVERSIGHT

## APPENDIX 1A – Definitions of Reliable and Resilient

There is a need to establish a uniform definition of grid resilience. The Federal Energy Regulatory Commission (FERC) initiated efforts in January 2018 to define resilience and to assess whether the U.S. bulk power system is, in fact, resilient. In addition, PJM and ISO-NE are undertaking studies to assess the fuel security of their respective systems.[clxi]

- The Federal Energy Regulatory Commission (FERC): Resilience is "... the ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event."
- PJM's definition of resilience focuses on HILF events. "The ability to withstand or quickly recover from events that pose operational risk."
- The North American Electric Reliability Corporation (NERC) defines Bulk Power System reliability as a function of adequacy and operating reliability. In this context, NERC defines adequacy as, "the ability of the electric system to supply the aggregate electric power and energy requirements of the electricity customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system components." Operating reliability is defined as, "the ability of the electric system to withstand sudden disturbances to system stability or unanticipated loss of system components."[clxii]
- National Academy of Sciences, Engineering and Medicine (NAS): A reliable electric system minimizes the likelihood of disruptive electricity outages, while a resilient system acknowledges that outages will occur, prepares to deal with them, and is able to restore service quickly and draws lessons from the experience to improve performance in the future.[clxiii]
- National Infrastructure Advisory Council (NIAC) definition of resilience:
- "Infrastructure resilience is the ability to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends on its ability to anticipate, absorb, adapt to and/or rapidly recover from a potentially disruptive event."[clxiv]
- Absorptive Capacity – ability to endure a disruption without significant deviation from normal operating performance
- Adaptive Capacity – ability to adapt to shock to normal operating conditions
- Recoverability – ability to recover quickly and at low cost from disruptive events



AMERICAN OVERSIGHT

## APPENDIX 1B – Reliable and Resilient Attributes

Markets must value resiliency as well as reliability. While there are quantitative metrics on which to evaluate the reliability of the grid, there are no agreed-upon criteria to determine if a grid is resilient.

**Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type**

| Attribute | Coal | Natural Gas | Wind/Solar | Nuclear | Demand Response |
|---|---|---|---|---|---|
| Dispatchability | ✓ | ✓ | | ✓ | |
| Inertia | ✓ | ✓ | ✓(wind) | ✓ | |
| Frequency Response | ✓ | ✓ | ✓ | | |
| Contingency Reserves | ✓ | ✓ | | | ✓ |
| Reactive Power | ✓ | ✓ | | ✓ | |
| Ramp Capability | ✓ | ✓ | | | ✓ |
| Black Start | | ✓ | | | |
| Resource Availability | ✓ | ✓ | | ✓ | |
| On-Site Fuel Supply | ✓ | | | ✓ | ✓ |
| Reduced Exposure to Single Point of Disruption | ✓ | | ✓ | ✓ | ✓ |
| Price Stability | ✓ | | ✓ | ✓ | ✓ |

Source: PA Consulting

- Dispatchability – The operation of baseload power plants can be scheduled well in advance to meet predicted load with minimal need to forecast factors which affect many other generation technologies. Over shorter time-frames, baseload power can be adjusted to increase or decrease output as necessary, providing flexibility in meeting fluctuations in demand.

- Frequency Response – active control to maintain a constant 60 Hz to keep grid operating safely and reliably.

- Inertia – When load changes occur rapidly in a system with baseload power, the inertia provided by these heavy rotating machines resists the changes in frequency helping the grid ride through disturbances.

- Frequency Response – Provides active control to maintain a constant 60Hz – this is the frequency that must be maintained to keep the grid, and all connected equipment, operating safely and reliably.



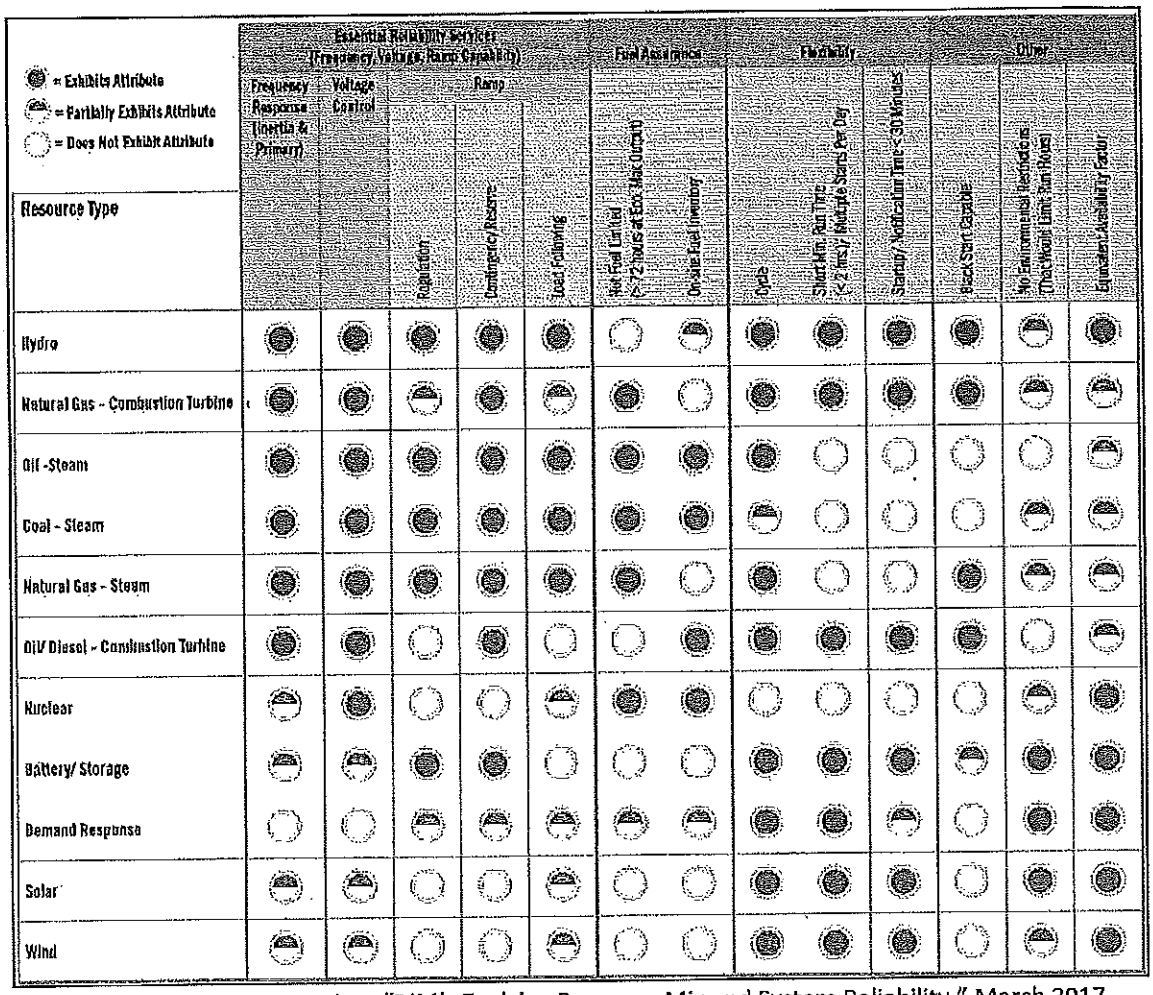
AMERICAN OVERSIGHT

- Contingency Reserves – Baseload plants are able to provide spinning reserves for backup power in case of system disruptions.
- Reactive Power – Baseload generators can supply reactive power to counteract fluctuations in voltage levels both on command and through Automatic Generation Control (AGC).
- Ramp Capability – Resources that can quickly increase or decrease their power output.
- Black Start Capability – Resources that can provide post-blackout electric connections to re-start the grid.
- Resource Availability – Ability to supply power on an uninterrupted basis for long periods of time.
- On-Site Fuel Supply – Minimizes potential for fuel supply chain disruptions.
- Reduced Exposure to Single Point of Disruption – Grid resources rely on external systems to ensure they operate reliably; coal benefits from on-site fuel stockpiles and multiple means of delivery.
- Stable, Predictable Pricing – Coal has traditionally had low and predictable variable fuel costs.

PJM analyzed 360 different portfolio mixes of electricity resources and their effect on electric reliability.[clxv] The portfolios represented different combinations of coal, natural gas, nuclear, wind, solar and other resources. Slightly more than one-quarter (1/4) of these (98) were "desirable," exhibiting high levels of reliability. Almost half (1/2) of the desirable portfolios consisted of 30%+ coal-fueled capacity. PJM also analyzed the effects of a polar vortex – one of several possible HILF events that could threaten electric grid resilience. Under assumed polar vortex conditions, only one third (1/3) of the desirable portfolios (34 of 98) were resilient – portfolios with coal at 30%+ remained resilient; due to "higher unavailability rates of natural gas under a polar vortex event" fewer portfolios with a higher percentage of natural gas were considered resilient. The conclusion is that PJM needs significant coal-fueled generating capacity to ensure a resilient grid, especially when encountering a HILF event.



AMERICAN OVERSIGHT




Source: PJM Interconnection, "PJM's Evolving Resource Mix and System Reliability," March 2017



AMERICAN OVERSIGHT

## APPENDIX 1C – Indirect Costs Associated with Intermittent Renewable Energy (IRE)

- Transmission is needed to move distant renewables to load centers (multi-billion dollar renewable-driven transmission projects are socialized across entire markets).
- Ancillary services that are necessary to "balance" non-dispatchables are not factored into renewable energy prices.
- Market distortions favoring IRE are discouraging investments in and driving retirements of other generation options with stranded costs of prematurely retired units being born by customers in regulated markets and utilities in deregulated markets.
- IREs increase the Levelized Cost of Electricity (LCOE) for conventional resources by reducing their utilization rates without reducing their fixed costs.[clxvi]
- Negative pricing, a consequence of production tax credits which occurs when the wholesale price of power is actually less than zero, is forcing generators to incur costs to stay online and generate power.
- Land use associated with IRE is significant – replacing a 400 MW coal power plant requires 4,350 acres of solar panels or 161,000 acres of non-coastal wind turbines.



AMERICAN OVERSIGHT

## APPENDIX 1D – Renewable Energy and Dispatch

The addition of renewable energy resources in any state or region will increase the need for and enhance the value of coal baseload plants because consumers require reliable power that is available at all times. It could even have the unintended consequence of increasing the value of some coal plants.[clxvii]

Consumer demand for 100% availability is accommodated by generating units supplying energy which matches the load shape forecast over a 24-hour period. Generating units are dispatched to match this 24-hour cycle, and additional operating (spinning) generation is held in reserve to meet unanticipated and anticipated unit interruptions or changes to the load forecast. The units supplying this energy are termed dispatchable and may be further categorized as:

- Base Load (called upon to operate 24 hours per day)
- Intermediate Load (which typically operate 8-10 hours per day)
- Peaking (called upon to operate a few hours per day, typically during peak periods)
- Operating Reserve (called upon either immediately or in a very short time frame to accommodate load which becomes un-served based on an operating unit coming off line very quickly or based on an unusual unscheduled demand for supply)

In order to operate, the system must constantly be in balance, with the supply of energy equal to the load. If there is too little supply, reserves are called on; if there is too much supply, generator output is reduced or curtailed. After the bilateral contracts are scheduled into the daily dispatch, the bids received from the generators are generally in a one-to-one correspondence with the costs to supply the energy, with the supply cost curve typically moving up in price from base load to peaking. Base and intermediate load generators are currently fueled primarily by coal and nuclear, and, increasingly in recent years, by natural gas. Peak power is typically fueled by natural gas.

Electric power from wind generators varies according to the cube of the wind speed impacting the turbine blades, but wind speeds vary dramatically over the course of a day, week, month, and year. Variations in wind power thus range from zero (no or very little wind blowing) to full nameplate capacity of the wind generators (during excessively high wind speeds, generators are shut down to avoid damage). Such on- again, off-again cycling of wind generators, as well as solar generators, is termed intermittent. Thus, the dispatching of wind turbines must accommodate intermittency, which is a significant system operational concern because consumers require reliable, always-available power-on-demand.[clxviii]

One consequence of intermittency is that wind power requires near 100% back-up by power plants that are reliable and dispatchable. Such backup plants must be capable of quickly ramping up or down to compensate for wind variations to provide power-on-demand to the consumer. Further, the backup plants must be maintained in a fully operational state at all times in order to be able to quickly respond to wind variations. The reserve called on to operate immediately to assure the changes to the supply/ demand requirements are in balance is called "spinning reserve."[clxix]



AMERICAN OVERSIGHT

Wind power is a growing percentage of total generation in many states. For example, in New York State, installed wind capacity increased from 279 GW in 2006 to 1,826 GW in 2016, and wind generation increased from 518 GWH in 2006 to 3,943 GWH in 2016.[clxx] However, wind's inherent nature-related variations must be accommodated by adjustments in on-line generators. As wind power is planned to grow significantly in many states, the backup power burden can no longer come from minor adjustments to dispatchable power plants. On this basis, the cost of large-scale wind generation must include not only the cost of the wind generators themselves but also the cost of dedicated dispatchable backup generation of a size which accommodates significant intermittent units operating on the system. The location of backup generators for wind power must be relatively close to the wind generators, otherwise large blocks of backup electric power would have to be shuttled over long distances over routes that at times are constrained and thus cannot accommodate such shuttling.

To reiterate, wind turbines do not generate electricity when the wind does not blow. However, few understand the degree to which these resources fail to operate when electric power is most urgently required. Production data on the U.S. power industry clearly illustrate that wind's intermittency requires significant generation resources to be operating on the electric system to assure reliable continuous supply, which can only be accommodated by generation of sufficient size and operating capability to furnish such backup.

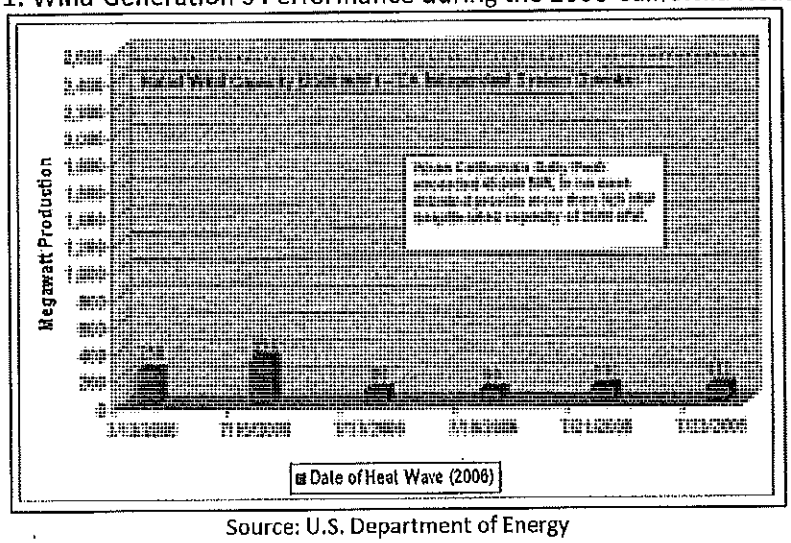
The U.S. Energy Information Administration (EIA) estimates average capacity factors for wind of about 33%, for solar thermal of about 22%, and for photovoltaics of about 25%.[clxxi] Other estimates of wind capacity factors are in the range of 20% to 30%, and could be even lower.[10] Given the time frame during the course of the daily load cycle during which peak loads occur, capacity factors for wind turbines are often much lower. For example, as shown in Figure 1, during the California heat wave in July 2006, which resulted in significant increases in electric demand, actual wind generation was at only about five percent of available name plate capacity. Thus, in this case, the capacity factor for wind was closer to five percent than 33% or even 20%. Balancing off such wind turbine availability is the availability of solar arrays during peak summer periods, but as is the case in the Northeast during periods of summer peak, solar arrays are also adversely impacted by thunder storm cloud cover.

[10] Centre for Sustainable Energy, "Common Concerns About Wind Power," June 2017. In addition, Hughes found that the normalised load factor for UK onshore wind farms declines from a peak of about 24% at age 1 to 15% at age 10 and 11% at age 15. He found that the decline in the normalised load factor for Danish onshore wind farms is slower but still significant, with a decline from a peak of 22% to 18% at age 15. Gordon Hughes, "Analysis of Wind Farm Performance in UK and Denmark, prepared for the Renewable Energy Foundation," December 2012. Similarly, Boccard noted "For two decades, the capacity factor of wind power measuring the mean energy delivered by wind turbines has been assumed at 35 percent of the nameplate capacity. Yet, the mean realized value for Europe over the last five years is closer to 21 percent thus making levelized cost 66 percent higher than previously thought." Nicolas Boccard, "Capacity Factor of Wind Power: Realized Values vs. Estimates," October 2008. The actual capacity factors for wind in Germany ranged between 14 and 21 percent over the period 2000 through 2007; see *Wind Energy Report Germany 2008*, ISET, Univ. Kassel, Germany, 2008.



AMERICAN OVERSIGHT

Figure 1. Wind Generation's Performance during the 2006 California Heat Wave




Source: U.S. Department of Energy

Similar availability issues have been encountered in Texas, which also has an aggressive wind power program. In 2008, the state installed nearly 2,700 MW of new wind capacity, and if Texas were an independent country, it would have then ranked sixth in the world in terms of total wind power production capacity. However, the Electric Reliability Council of Texas (ERCOT) analyzed the capacity factor of wind and estimated it to be less than nine percent. In a 2007 report, ERCOT determined that only "8.7 percent of the installed wind capability can be counted on as dependable capacity during the peak demand period for the next year." It went on to say "Conventional generation must be available to provide the remaining capacity needed to meet forecast load and reserve requirements." In 2009, ERCOT re-affirmed its decision to use the 8.7% capacity factor.[clxxii]

For non-coastal wind, ERCOT has measured a historical capacity factor of only 12% in summer months.[clxxiii] Analysis of Seasonal Assessment of Resource Adequacy (SARA) reports and historical data from the summers of 2012 through 2015 indicates that wind capacity utilization could be as low as 4.1%. This implies that total wind output across ERCOT could total only 679 MW on a peak summer day – when the power is most needed. ERCOT planners continued to estimate that that wind projects would provide less than 9% of their nameplate capacity towards meeting peak demand.[clxxiv] That estimate for Effective Load-Carrying Capability (ELCC) was based on the fact that wind production is not dependable and may be inversely correlated with demand, especially during hot summer days with little or no breeze.

A widely publicized report by the Texas Comptroller of Public Accounts found that little wind power is available in the summer months when Texans use the most power.[clxxv] The report highlighted the monumental failure of wind power to be available when it is required, stating "For summer 2014, even though Texas had more than 11,000 MW of total wind capacity, ERCOT counted on just 963 MW of wind generation being available. The lack of wind generation during summer peak demand means that energy planners, such as ERCOT, have to ensure that a lot of flexible natural gas generation is available to meet the reserve margin." Thus, as shown in Table 1, wind generation is lowest during the summer months when energy demand is the highest.



AMERICAN OVERSIGHT

Table 1. Comparison of Generation Ability in ERCOT

| GENERATION SOURCE | AVAILABILITY OF INSTALLED CAPACITY, 2013 | 2013 GENERATION (% OF TOTAL) | ELECTRICITY DELIVERED AT 2013 PEAK DEMAND |
|---|---|---|---|
| GAS (ALL TYPES) | 81%-89% | 41% | 59% |
| COAL (ALL TYPES) | 84%-86% | 37% | 29% |
| NUCLEAR | 85% | 12% | 7.5% |
| WIND | 8.7%* | 10% | 3.5% |

Note: *Because wind generation varies so much each day, wind percentage is reported as the effective load-carrying capacity used by ERCOT for forecasting purposes. Total available wind capacity was 11,066 MW as of May 1, 2014. Other resources were excluded from this comparison due to their limited capacity.

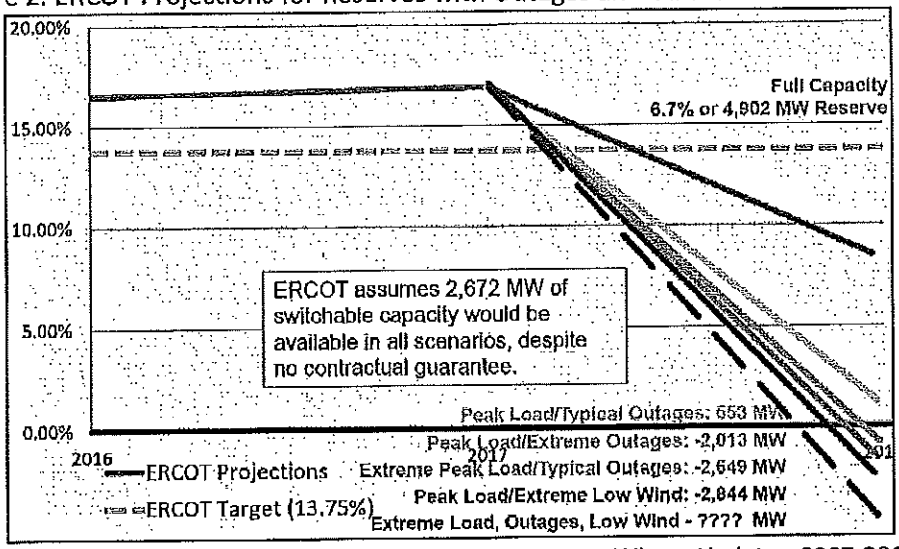
Source: Electric Reliability Council of Texas and Texas Reliability Entity.

More recently, Mike Nasi (Jackson Walker LLP) analyzed the Texas power market and found that:[clxxvi]

- Baseload coal has been a backbone of the Texas Success Story, but renewable subsidy market distortions are endangering the grid.
- The cost of transmission and ancillary services to build and "balance" renewables is socialized to entire market and masked by low natural gas prices.
- The more the grid is exposed to large "swings" when the wind stops blowing, the more blackouts and price spikes are a risk.
- Prolonged market distortions erode the economics of baseload, drive retirements, and discourage investments in new baseload (even gas).
- Basic realities of physics and energy density make renewables an inadequate replacement to baseload electricity from coal.

As shown in Figure 2, the near-term implications for Texas may be ominous.

Figure 2. ERCOT Projections for Reserves with Outages and Variable Wind Conditions




Sources: ERCOT, Capacity, Demand and Reserves Reports, Winter Updates, 2007-2017; Seas. Assess. of Res. Adeq., Mar. 2018.



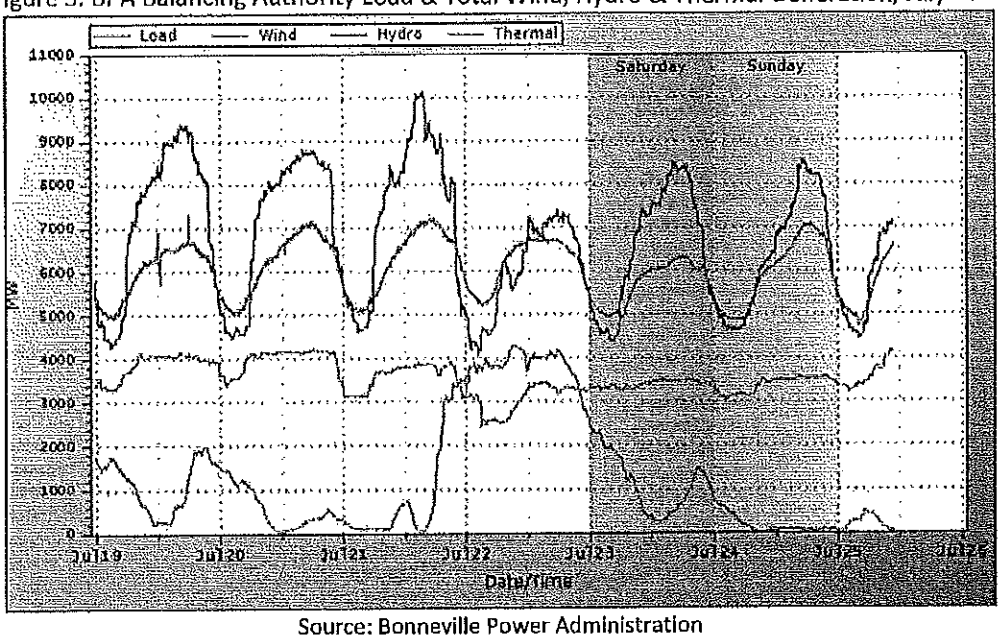
AMERICAN OVERSIGHT

Thus, despite massive investments and continuing subsidies, wind power has been providing only a small percent of Texas's total reliable generation of energy, and ERCOT's projections show that wind will continue to remain an insignificant player in terms of reliable capacity. Accordingly, Texas will continue to rely almost entirely on natural gas, coal, and nuclear power to generate electricity.

The experience of the Pacific Northwest, another region with an aggressive wind program, is similar. Often when it is very hot or very cold and electric power demand is greatest, wind generation is simply not available. For example, during the cold days of January 5 to 28, 2009 wind generation in the region was virtually non-existent.[clxxvii] Another example of wind generation variability took place on October 16, 2012 when wind generation on the Bonneville Power Administration system was producing 4,300 MW, accounting for 85 percent of total generation in the pre-dawn hours. The next day, wind generation was practically non-existent, falling to almost zero.[clxxviii]

Similarly, an extreme 2016 heat in Washington State illustrated the reliability problems with wind power.[clxxix] Figure 3 illustrates that during the heat wave, nuclear power (the largest proportion of the thermal curve shown) provided power continuously at a capacity factor of 98% and hydro was used to load-follow. Wind blew occasionally, and mostly when it was not needed. Most of the electricity needed to combat this heat wave was concentrated during peak hours of the afternoon when the wind turbines were not turning.

Figure 3. BPA Balancing Authority Load & Total Wind, Hydro & Thermal Generation, July 2016




Source: Bonneville Power Administration

Analysis of almost four years of generation data in ERCOT with over 10,000 MW of wind capacity, the Midwest ISO (MISO) with almost 12,000 MW of wind capacity, and the PJM Interconnection (PJM) with over 5,000 MW of wind capacity, found that:[clxxx]

- In all three regions, over 84% of the installed wind generation failed to produce electricity when electric demand was greatest.



AMERICAN OVERSIGHT

- In MISO, only between 1.8% and 7.6% of wind capacity was available and generating power during the peak hours on the highest demand days.
- In ERCOT, only between 6.0% and 15.9% of wind facilities generated power during peak summer periods.
- In PJM, the range was between 8.2% and 14.6% during peaks.
- These availability values are significantly lower than median availability for the entire period.

The July 2012 heat wave in Illinois, where temperatures reached 103 degrees in Chicago, provides another example of wind generation's limitations to perform when needed most. During this heat wave, Illinois wind units generated less than five percent of nameplate capacity, producing only an average of 120 MW of electricity from over 2,700 MW installed. On July 6, 2012, when the demand for electricity in northern Illinois and Chicago averaged 22,000 MW, the average amount of wind power available during the day was virtually nonexistent at 4 MW.[clxxxi]

More generally, the greatest amounts of wind generation occur in the spring and fall, when the demand for electricity is lowest, and the smallest amounts of wind generation occur in summer, when the demand for electricity is the greatest. Wind generation data in PJM, the nation's largest independent system operator, show that the "load–wind gap" (the difference between summer electric demand and summer wind availability, relative to respective annual averages) was almost 70% in the summers of 2010 and 2011. In summer 2012, the load–wind gap was 59%.[clxxxii]

Thus, "While renewable energy sources have made many advances in recent years, they are not widespread enough to be able to support an electrical grid as a base load. Renewable energy is intermittent, unreliable, requires back-up, is non-dispatchable, and not is available during emergencies."[clxxxiii]

The New York State wind experience is similar to that in other regions and indicates the need for baseload facilities to back-up renewable generation intermittency. For example, an analysis of 16 wind projects in New York State between 2008 and 2011 found that, despite vendor promises prior to installation of capacity factors of 30% to 35%, average annual capacity factors ranged between 14.1% and 22.7%.[clxxxiv]

Researchers also analyzed four New York State wind projects since their inception in a comprehensive study centered on the Noble Chateaugay project, which has 71 GE 1.5 SLE turbines and is capacity-rated at 106.5 megawatts.[clxxxv] Their research determined that the actual annual output of the Chateaugay project was only 23 megawatts, giving it a capacity factor of 21.6%. The other northern New York projects had similar capacity factors. The researchers noted that this is substantially less than the 30% to 35% commonly predicted by wind developers. They also found that all northern New York wind projects had more than 1,200 hours annually that produced no electricity at all -- the equivalent of 50 24-hour days, or 14% of the time, with zero generation. Thus "It appears wind developers notoriously inflate expected capacity factors to entice investors and increase chances of permitting approvals." Further, "Both Vesta and GE turbines have a manufacturer's life expectancy rating of 20 years, yet no northern New York wind project is on track to sell enough electricity in 20 years to pay for itself."[clxxxvi]



AMERICAN OVERSIGHT

All New York generating units, both renewable and non-renewable, have an "unforced capacity value" (UCAP) for purposes of the capacity markets, which is used for reliability planning and which load serving entities such as the state's electric utilities purchase to assure that installed generating reserve is available to serve customer load during peak periods.[clxxxvii] This UCAP value is a percentage of a resource's nameplate MW value; for wind and solar this number is based on an initial NYISO designated rating for Year 1 of operation and on actual historical energy output for every year thereafter. The values are facility specific, but the UCAP for onshore wind in NY is 10-14% for the summer peak – when electricity is needed the most and electricity prices are the highest.[clxxxviii]

This unforced capacity value is not unique to New York State, or even to the U.S. Similar unforced capacity values are the case in the Netherlands, Denmark, England, Germany, Spain, Portugal, and Ireland, or anywhere that large scale wind generation is part of the installed generation mix.[clxxxix] An Australian study found that even wind farms spread over large, widely dispersed areas and interconnected into a single electric system cannot produce electricity with capacity factors close to name plate capacity.[cxc]

Further, the performance and capacity factors of wind turbines deteriorate over time. A seminal study analyzed the rate of ageing of a national fleet of wind turbines using public data for the actual and theoretical ideal load factors from the UK's 282 wind farms.[cxci] It found that:

- Load factors declined with age, at a rate similar to that of other rotating machinery.
- Onshore wind farm output declines 16% a decade.
- Performance declines with age occurred in all farms and all generations of turbines.
- Decreasing output over a farm's life increased the levelized cost of electricity.

The study determined that this degradation was consistent for different vintages of turbines and for individual wind farms, ranging from those built in the early 1990s to early 2010s.[cxcii]

The Renewable Energy Foundation, an organization that advocates in favor of renewable energy facilities, also conducted a comprehensive study of the available capacity factors over time for wind turbines in the UK and came to similar findings. Using monthly observations for 282 onshore installations in the UK with an age range of zero to 19 years, it found "the normalized load factor for UK onshore wind farms declines from a peak of about 24% at age one to 15% at age 10% and 11% at age 15."[cxciii] In other words, the capacity factors for wind generators decline significantly every year after installation.

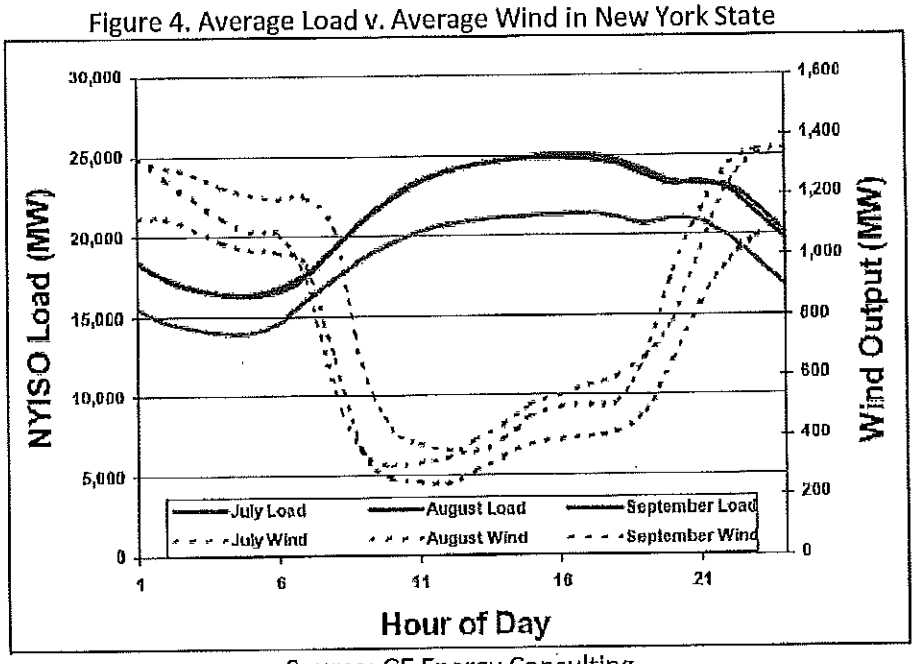
State renewable portfolio standards contributed to more than half of all renewable electricity growth in the U.S. since 2000.[cxciv] Expanding the supply of electricity from renewable resources and enhancing energy efficiency are among the longstanding goals of many states. In addition, many states have established extremely ambitious renewable energy goals.

However, wind generation, for example, presents serious challenges to system operators due to the variability of output and to the fact that wind energy production tends to increase much later in the day, when power use is declining, and to decline in the morning when power use is building. Figure 4 demonstrates this for New York State. In addition, wind projects in New York are predominantly being developed in the northern and western portions of the state, based on available wind resources situated almost exclusively in this region, while the population centers of southeastern New York are the regions with the highest demand for electric supply.[cxcv] This presents a dispatch encumbrance for the future of NY electric markets because most of the proposed new electric generation in NY consists of renewables.[cxcvi]



AMERICAN OVERSIGHT

Figure 4. Average Load v. Average Wind in New York State




Source: GE Energy Consulting

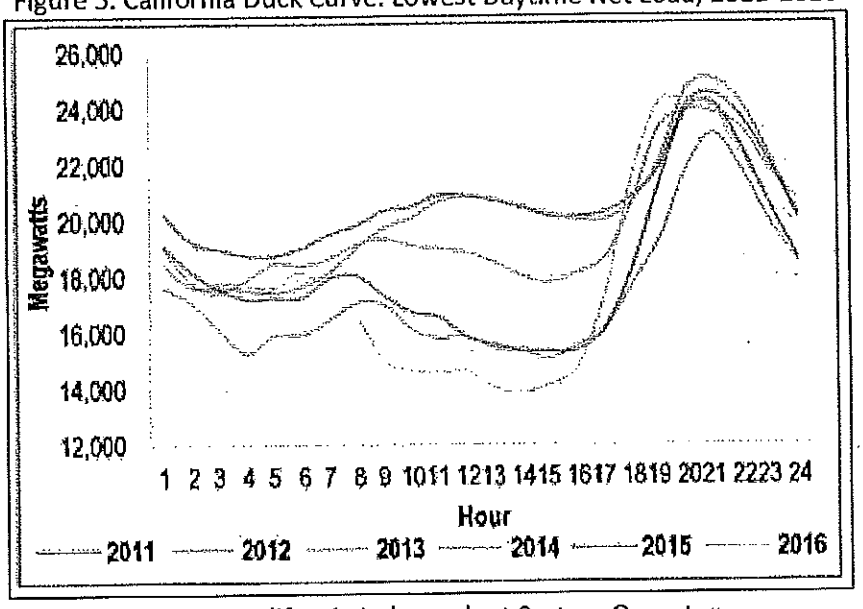
Solar energy is also ill-suited to supplying reliable electric power when it is needed. The duck curve -- named after its resemblance to a duck – shows the difference in electricity demand and the amount of available solar energy throughout the day. When the sun is shining, solar floods the market and then declines rapidly off as electricity demand peaks in the evening. The duck curve in Figure 5 is a snapshot of a 24-hour period in California during springtime – when this effect is most extreme because it is sunny but temperatures remain cool, so demand for electricity is low since people aren't using electricity for air conditioning or heating.

In commercial-scale electricity generation, the duck curve is a graph of power production over the course of a day that shows the timing imbalance between peak demand and renewable energy production. In many energy markets the peak demand occurs after sunset, when solar power is no longer available. In locations where a substantial amount of renewable electric capacity has been installed, the amount of power that must be generated from sources other than solar or wind displays a rapid increase around sunset and peaks in the mid-evening hours, producing a graph that resembles the silhouette of a duck.[cxcvii] The most pertinent example is currently in California, as illustrated in Figure 5. This shows that the problem has become significantly worse in recent years as California has mandated increasing amounts of renewable energy and should serve as a warning to other states as they pursue ambitious renewable energy goals.



AMERICAN OVERSIGHT

Figure 5. California Duck Curve: Lowest Daytime Net Load, 2011-2016




Source: California Independent System Operator

In sum, numerous studies indicate that baseload facilities, which provide backup for intermittent power, can provide increasingly valuable system support which increases in importance every year as more wind facilities are installed. As renewable energy generation increases as a percentage of U.S. generation capacity mix over the coming decades, the more necessary sources of non-intermittent generation from baseload facilities will become. The planning processes in many states currently rely on renewables as a major generation source.[cxcviii] Replacement of baseload non-intermittent generation with intermittent renewable capacity will require generation from reliable sources to be available and to be on-line more frequently. This will make them all that more valuable. Further, since the performance and capacity factors of wind turbines deteriorate over time – starting at the year of installation, the need for and the value of more reliable power sources will increase every year.



AMERICAN OVERSIGHT

## APPENDIX 1E – Highlights of NERC Testimony on the Performance of the Electric Power System Under Certain Weather Conditions

U.S. Senate Energy & Natural Resources Committee, January 23, 2018

Testimony of Charles A. Berardesco, Interim President & CEO, North American Electric Reliability Council (NERC)

https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=D982B4F9-ECAF-403B-88BA-C82D2634E2DA

"In its long-term reliability assessments, NERC identifies how reliance on a single fuel increases vulnerabilities, particularly during extreme weather conditions. Against a backdrop of low natural gas prices and policies that promote increased natural gas generation, regions of the country have significantly increased dependence on natural gas over the past decade. Four of NERC's assessment areas now meet their peak electric demand with greater than 50% of that sourced from natural gas-fired generation.

NERC's 2017/2018 Winter Reliability Assessment observes an increasing trend since 2012 of natural gas-fired generation outages during winter months. These historical outages that resulted from fuel unavailability during the winter months underscore the need for fuel assurance and operational readiness during periods when reliance on natural gas can be critical.

During the extreme cold, a diverse generation mix with adequate flexible fuel resources and back-up fuel was key to meeting increased electricity demand. All forms of generation contributed to serving load ... Accordingly, NERC recommends policymakers and regulators should consider measures promoting fuel diversity and supplemental fuel sources as they evaluate electric system plans, consistent with policy objectives."



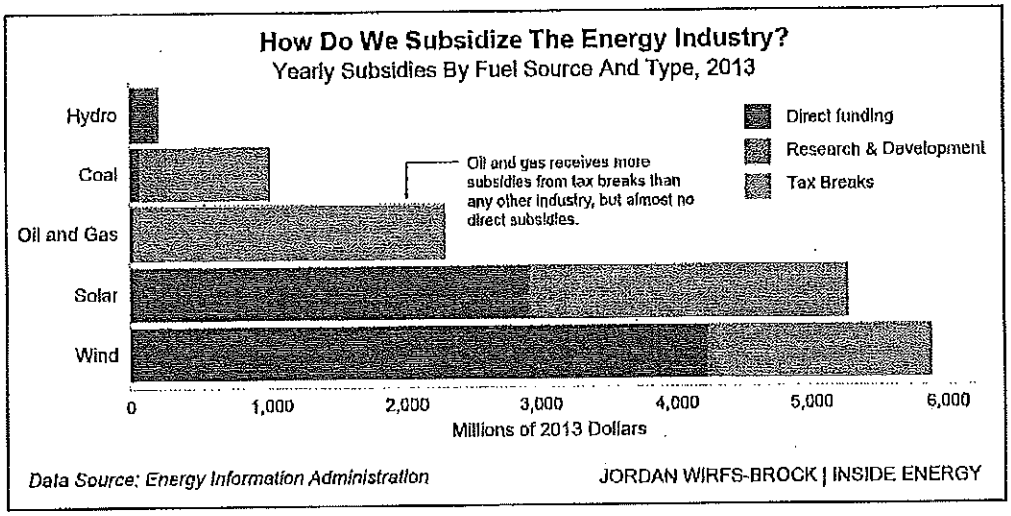
AMERICAN OVERSIGHT

## APPENDIX 1F – Perspectives on Energy Subsidies

Environmental regulations, subsidies and policy mandates contribute to the cost of electric generation and skew the playing field for deployment of energy resources. Renewables, which are subsidized to a larger degree than other sources of energy, have benefited for years from tax credits, direct funding, and research and development support funding. This level of support has put other energy resources at a market disadvantage, fostering the need for corrective, compensatory measures that will facilitate parity.

Among the key findings in an April 2018 report[11] by the Energy Information Administration (EIA) is that "Most current federal subsidies support developing renewable energy supplies (primarily biofuels, wind, and solar) and reducing energy consumption through energy efficiency. In FY 2016, nearly half (45%) of federal energy subsidies were associated with renewable energy, and 42% were associated with energy end uses." The report documents that between 2010 and 2016, renewable energy's share of energy-specific subsidies and support increased from 42% to 45%; coal's share for the same period increased from 2% to 8%. Analysis by other entities for prior years documents similar findings.

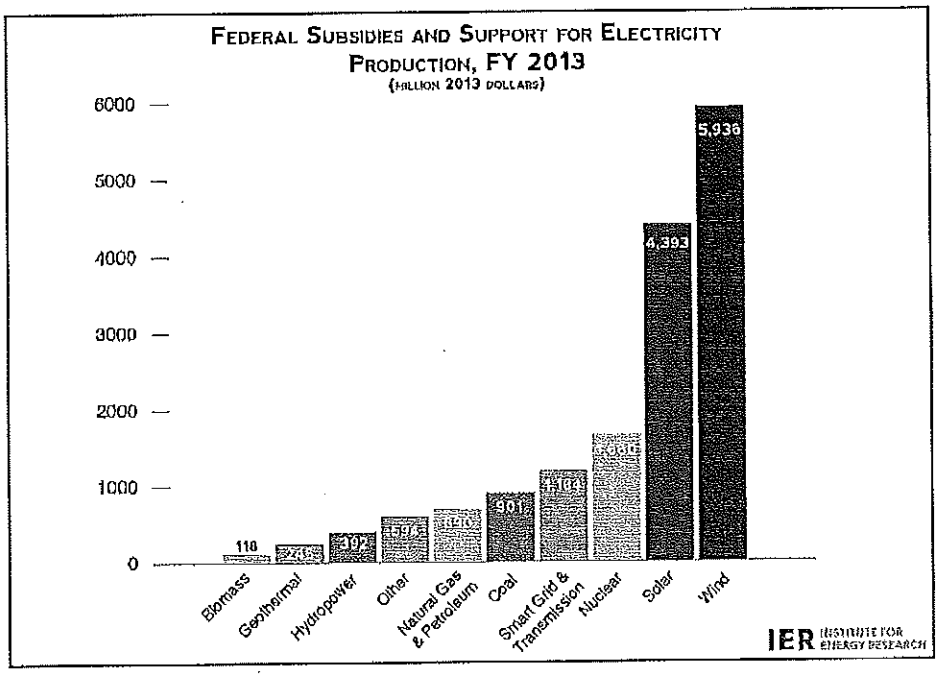
In addition to the market disadvantages imposed by such distortions, tilted playing field has curtailed investment in advanced technologies capable of furthering environmental objectives associated with all energy resources. Inequitable mandates, subsidies and policies have contributed to increased electric prices by forcing the early retirement of power plants, leaving valuable stranded assets that can only be compensated for through increased consumer prices.




[11] EIA, "Direct Federal Financial Interventions and Subsidies in Energy in Fiscal Year 2016," April 2018, https://www.eia.gov/analysis/requests/subsidy/pdf/subsidy.pdf



AMERICAN OVERSIGHT




| Beneficiary | Direct Expenditures | Tax Expenditures | Research and Development | Federal and RUS Electricity | Total | Share of Total Subsidies and Support |
|---|---|---|---|---|---|---|
| Coal | 61 | 642 | 167 | 30 | 901 | 6% |
| Natural Gas and Petroleum Liquids | 18 | 662 | 10 | | 690 | 4% |
| Nuclear | 37 | 1,109 | 406 | 109 | 1660 | 10% |
| Renewables | 7,408 | 3,373 | 722 | 176 | 11678 | 72% |
| Biomass | 62 | 9 | 47 | - | 118 | 1% |
| Geothermal | 221 | 22 | 2 | -- | 245 | 2% |
| Hydropower | 191 | 17 | 10 | 171 | 392 | 2% |
| Solar | 2,348 | 1,712 | 234 | - | 4393 | 27% |
| Wind | 4,274 | 1,614 | 49 | - | 5936 | 37% |
| Other | 209 | - | 380 | 5 | 594 | 4% |
| Subtotal Renewables Electric | 7,408 | 3,373 | 722 | 176 | 11678 | 72% |
| Electricity - Smart Grid and Transmission | 8 | 211 | 831 | 134 | 1184 | 7% |
| Total | 7,532 | 5,996 | 2,138 | 449 | 16112 | 100% |

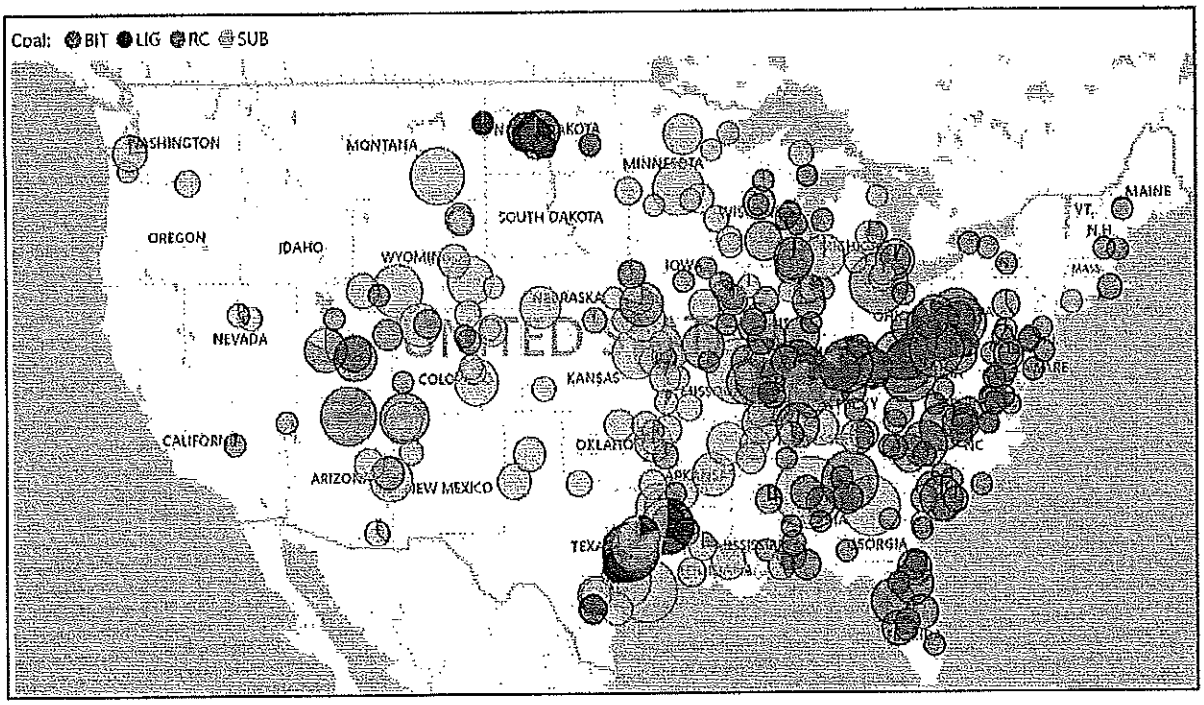
Source: DOE Grid Study: Fiscal Year 2013 Electricity Production Subsidies and Support



AMERICAN OVERSIGHT

## APPENDIX 1G – U.S. Coal Power Plants Location, Coal Type and Generation (MW)

The location and size of coal-based power plants in the contiguous U.S. is shown below. The largest density of plants and generating capacity is in the eastern half of the country, with the exception of the New England states. The type of coal-based plant typically varies by region, with a higher density of bituminous-based plants in the east and southeast with the exception of several units firing local bituminous coals in the west. Most of the subbituminous coal is shipped by rail from the Powder River Basin in Montana-Wyoming to plants in the mid-west and west. Lignite plants are typically located near lignite mines in the Gulf region and in North Dakota.




Location, coal type, and relative electricity generation (MWhr) for coal-based plants in contiguous U.S. RC = plants reporting using refined coal.
Source: U.S. EIA Forms EIA-860 and EIA-923 data



AMERICAN OVERSIGHT

## APPENDIX 1H – Environmental Regulations Impacting Coal Generation

| Regulation | Federal Register Publication | Implementation Period | Provision Highlights | Potential and Realized Impacts |
|---|---|---|---|---|
| Cooling water intake rule (316b) under the Clean Water Act (CWA) | Phase 1 – 2001 rev., 2003, Phase 2 – 2014 | Phase II 2014 - 2018 | Requires controls to reduce mortality to fish and aquatic organisms | Upgrades to cooling water intake structures to reduce and elimination of once through cooling through use cooling towers |
| Cross-State Air Pollution Rule under the Clean Air Act (CAA) | 2011 | Phase 1 – 2015 and Phase 2 - 2016 | Requires states to reduce emission of SO2 and NOx. | Requires new or upgrades to emission control equipment such as FGD scrubber systems and SCR catalyst systems. |
| Steam Electric Effluent Limitations Guidelines, CWA, 40 CFR 423 | Initially in 1974 with the last publication in 2015 | 2015 update is stayed while EPA reviews Rule | Establishes limitation on the discharge of chemical pollutants and thermal discharges from steam electric power plants. The 2015 update sets federal limits on levels of metals that can be discharged | No wet sluicing of bottom or fly ash to ash ponds. New limits of metals can only be achieved with new technology of a combination of physical chemical systems. The EPA estimated annual, industry-wide cost for power plants to comply would be $480 million. The actual cost is significantly different from site to site. |
| New Source Review (CAA) | 1980 Initially with last update in 2002 | 2002 updates under court challenge | Requires new or modified power plant upgrades most obtain a pre-construction permit to ensure modern emission control equipment is installed. New Source Performance Standards (NSPS) makes it nearly impossible to retrofit existing facilities because rules stipulated plants can emit no more than 1,400 pounds of CO2 per megawatt hour of electricity generated. A standard coal plants can't meet without carbon capture and storage. | Requires new or modified power plant upgrades most obtain a pre-construction permit to ensure modern emission control equipment is installed. New Source Performance Uncertainty stemming from NSR process has led to a lack of investment in efficiency upgrades which would have led to more efficient power generation and reduced environmental impacts. |



AMERICAN OVERSIGHT

EXT-18-2615-G-000436

| | | | | |
|---|---|---|---|---|
| Mercury and Air Toxics Standards (CAA) | 2012 | 2015 and for some units qualifying for a 1 year extension to 2016 | Establishes emission limits for mercury, arsenic, acid gases, and other toxic pollutants | Implementation of a combination of control technology such as FGD scrubber systems, Selective Catalytic Reduction (SCR) systems, fuel additives, and/or activated carbon injection systems. "Of the 87 GW of coal capacity that installed pollution control equipment to comply with MATS, activated carbon injection (ACI) was the dominant compliance strategy. More than 73 GW of coal-based capacity installed ACI systems in 2015 and 2016, effectively doubling the amount of coal capacity with ACI." At least $6.1 billion was invested from 2014-2016 to comply with MATS or other environmental regulations.[cxcix] |
| Coal Combustion Residuals Rule under Resource Conservation and Recovery Act (RCRA) | 2015 | 2015 - 2018 | New regulations on the disposal of coal combustion residuals (CCRs) by electric facilities. Rules establish national standards for disposal. Address dike and pond stability requirements. Addresses groundwater contamination risks from coal combustion residuals (CCRs) disposal in landfills and ponds by establishing national standards for disposal | Triggers landfill and pond closures if stability and locations standards and groundwater standards are not met. Retiring a coal-based unit after the effective date of the Rule isn't a compliance option so this Rule alone doesn't trigger retirements. Enforcement was through citizen enforcement (the threat of lawsuits) until passage of the WIIN Act. The reporting burden and threat of lawsuits is one more consideration that weighs in favor of closures of coal based plants. If closure occurred prior |



AMERICAN OVERSIGHT

| | | | | |
|---|---|---|---|---|
| | | | | to effective date of Rule, the Rule wasn't applicable. |
| Regional Haze Rule under CAA | 1999 with policy revisions in 2017 | Revised state plans due in 2021 | Requires states to develop long-term strategies and enforceable measures to improve visibility in 156 national parks and wilderness areas. Aims to return visibility to natural conditions by 2064. | Uncertainty about implementation impacts power plant compliance and retirement planning. |
| Carbon Pollution Standards and Clean Power Plan (CPP) under CAA | 2015 | Under EPA review and is currently stayed (Feb 2017, U.S. Supreme Court decision put the initiate on hold. October 2017 a Notice of Proposed Rulemaking was issued to repeal the CPP. | Establishes CO2 emission standards for new and existing power plants | The never implemented CPP was still damaging because the prospects of compliance triggered retirements because coal emits roughly twice the carbon as natural gas electricity generators. Even the prospect of compliance weighed heavily with decision makers |



AMERICAN OVERSIGHT

EXT-18-2615-G-000438

Appendix 2A – ACCCE Retirement Tracker August 2018

AMERICA'S POWER

ACCCE | Reliable • Secure • Resilient • Affordable

## RETIREMENT OF COAL-FIRED ELECTRIC GENERATING UNITS[12]

***As of August 12, 2018***

### All Retirements

Since 2010, power plant owners have announced either the retirement or conversion to other fuels of a large number of coal-fired electric generating units.[13] The table on the following pages summarizes all publicly announced retirements through 2030. The table shows that 630 coal-fired generating units in 43 states — totaling over 115,000 megawatts (MW) of generating capacity — have retired or announced plans to retire. These retirements are approaching 40% of the U.S. coal fleet that was operating in 2010. Through 2017, approximately 68,000 MW of coal-fired generating capacity have retired. For 2018-2020, an additional 25,000 MW are expected to retire, bringing total retirements to 93,000 MW by the end of 2020.

### EPA-Attributed Retirements

The table also includes retirements that have been explicitly attributed to EPA regulations and policies. These EPA-caused retirements total 463 units and represent almost 77,000 MW of coal-fired generating capacity. Of the total, 58,000 MW have already retired.

### ISO/RTO Retirements

Over 50,700 MW of coal-fired generating capacity in ISO/RTO regions have retired. An additional 5,400 MW in these regions are slated to retire over the remainder of 2018-2020, of which 3,100 MW have been attributed to wholesale electricity market conditions. The regions with the most retirements through 2020 are PJM (32,400 MW), MISO (14,700 MW), ERCOT (5,100 MW) and SPP (5,100 MW).

---

[12] Retirements and conversions are based primarily on public announcements by the owners of the coal units. We also use other information sources that are reliable. These retirements and conversions are *not* based on modeling projections. We do not include small (less than 25 MW) cogeneration units. Since most of these units are retiring, not converting to another fuel, we use the term "retirements" in this paper to characterize units that may be *either* retiring or converting.

[13] In 2010, according to EIA, the U.S. coal fleet was comprised of 1,396 electric generating units located at 580 power plants for a total electric generating capacity of approximately 317,000 MW.



AMERICAN OVERSIGHT

| | MW RETIRING | UNITS RETIRING |
|---|---|---|
| 1. Ohio | 12,131[14] / 6,421[15] | 59 / 40 |
| 2. Indiana | 6,569 / 6,129 | 39 / 34 |
| 3. Pennsylvania | 5,847 / 5,548 | 34 / 30 |
| 4. Texas | 5,672 / 1,399 | 10 / 3 |
| 5. Illinois | 5,663 / 3,076 | 21 / 14 |
| 6. Alabama | 5,166 / 5,166 | 26 / 26 |
| 7. Michigan | 4,911 / 4,075 | 44 / 31 |
| 8. Florida | 4,752 / 1,568 | 14 / 7 |
| 9. North Carolina | 4,615 / 2,783 | 37 / 20 |
| 10. Kentucky | 4,168 / 3,743 | 20 / 18 |
| 11. West Virginia | 4,040 / 2,740 | 20 / 18 |
| 12. Georgia | 3,752 / 3,249 | 17 / 15 |
| 13. Arizona | 3,482 / 3,482 | 8 / 8 |
| 14. Virginia | 3,258 / 2,354 | 29 / 16 |
| 15. Wisconsin | 2,928 / 1,287 | 27 / 16 |
| 16. Nevada | 2,689 / 0 | 8 / 0 |
| 17. Tennessee | 2,659 / 2,659 | 17 /17 |
| 18. Oklahoma | 2,414 / 2,414 | 5 / 5 |
| 19. Colorado | 2,405 / 1,776 | 19 / 16 |
| 20. Missouri | 2,372 / 2,355 | 24 / 23 |
| 21. Minnesota | 2,288 / 2,150 | 17 / 15 |
| 22. Montana | 2,248 / 154 | 5 / 1 |
| 23. New Mexico | 2,222 / 2,222 | 7 / 7 |
| 24. Utah | 2,072 / 272 | 7 / 5 |
| 25. Iowa | 1,847 / 1,579 | 33 / 29 |
| 26. South Carolina | 1,768 / 1,768 | 14 / 14 |
| 27. New York | 1,708 / 475 | 14 / 3 |

[14] Total coal retirements.
[15] Coal retirements attributed to EPA regulations and policies.



AMERICAN OVERSIGHT

| | | |
|---|---|---|
| 28. Massachusetts | 1,663 / 1,408 | 8 / 6 |
| 29. Arkansas | 1,659 / 1,659 | 2 / 2 |
| 30. New Jersey | 1,543 / 268 | 6 / 2 |
| 31. Washington | 1,376 / 0 | 2 / 0 |
| 32. Nebraska | 757 / 637 | 6 / 5 |
| 33. Mississippi | 706 / 706 | 2 / 2 |
| 34. Maryland | 635 / 115 | 5 / 2 |
| 35. Oregon | 585 / 585 | 1 / 1 |
| 36. Louisiana | 575 / 575 | 1 / 1 |
| 37. Connecticut | 566 / 0 | 2 / 0 |
| 38. Kansas | 550 / 478 | 7 / 6 |
| 39. Delaware | 360 / 0 | 4 / 0 |
| 40. North Dakota | 189 / 0 | 1 / 0 |
| 41. California | 129 / 0 | 3 / 0 |
| 42. Wyoming | 49 / 49 | 4 / 4 |
| 43. South Dakota | 22 / 22 | 1 / 1 |
| **43 / 37 States** | **115,010 / 77,346 MW** | **630 / 463 Units** |



AMERICAN OVERSIGHT

# Appendix 2B – Coal Combustion Residuals Rule

Summary

The Coal Combustion Residuals (CCR) rule imposes high costs on certain disposal sites. The rule may drive units to retire as the compliance costs become prohibitive, adding to the cost of generation, or their disposal facility is forced to close, and the alternatives are too expensive. A detailed discussion of the rule's impacts on coal plants and associated costs are presented here.

Background

EPA promulgated the current regulation governing the management of Coal Combustion Residuals CCR Rule at power plants on April 17, 2015 ("the 2015 CCR Rule"). The 2015 CCR Rule established national minimum criteria for existing and new CCR landfills and surface impoundments. The minimum national standards include location restrictions; design and operating criteria; groundwater monitoring and corrective action; closure requirements and post closure care; and recordkeeping, notification and Internet posting requirements. The 2015 CCR Rule, promulgated under RCRA 1008(a), 4004(a) and 4005(a), did not require facilities to obtain a federal or state permit, nor did it establish any requirements on states or state programs. EPA took the position that it did not have the authority under RCRA to require or recognize state permits (or other systems of prior authorization) and, as a result, the 2015 CCR Rule is strictly a self-implementing program, enforceable solely through RCRA citizen suits.

In December 2016, the Water Infrastructure Improvements for the Nation (WIIN) Act was enacted, establishing new statutory provisions applicable to CCR units. The WIIN Act authorized states to implement the CCR Rule through an EPA-approved permit program; and also authorized EPA to enforce the rule and in certain situations to serve as the permitting authority. Accordingly, states may submit a program to EPA for approval and authorizations or permits issued pursuant to the approved state program operate in lieu of the federal requirements. To be approved, a state program must require each CCR unit to achieve compliance with the federal regulations, or alternative state criteria that EPA has determined are "at least as protective" as the Federal regulations. Facilities are to continue to comply with the CCR Rule, however, until a state program is in effect for the regulation of the CCR units.

CCR Rule Provisions that Could Drive Retirements

The two most significant potential coal plant retirement drivers in the CCR Rule are: (1) location restrictions applicable in varying degrees to all CCR units and (2) retrofit/closure requirements applicable to "unlined" CCR surface impoundments.

*Location Restrictions.* The 2015 CCR rule contains five location restrictions that apply to new CCR units and selectively to existing CCR units. These restrictions include: (1) disposal within five feet of the uppermost aquifer; (2) disposal in wetlands; (3) disposal in unstable areas, including karst areas; (4) disposal near active fault zones; and (5) disposal in seismic impact zones. In addition, the current subtitle D regulation (40 CFR 257.3-1) that applied to these units before the final rule was issued, already restricts facilities that dispose of wastes in floodplains. For fault areas, seismic impact zones, and unstable areas (using karst areas as a proxy) the EPA's



AMERICAN OVERSIGHT

Regulatory Impact Analysis (RIA) projected that 51 of the 1045 waste management units would be subject to the location restrictions resulting in an estimated 26 waste management units closing as a result. The remaining waste management units are expected to make certifications either that they are not subject to these three location restrictions or that their continued operation in these areas is protective.

*Surface Impoundment Retrofit/Closure Requirements.* The 2015 CCR Rule establishes a robust groundwater monitoring and corrective action program. Under the Rule, by January 15, 2018 owners/operators were required to complete a statistical evaluation to determine if data from wells downgradient of the CCR unit demonstrate that there is a statistically significant increase over background levels. The constituents that are of relevance at this stage of the evaluation are referred to as "Appendix III constituents." If a statistically significant exceedance of an Appendix III constituent requires a facility to proceed to "assessment monitoring."

At this stage, a different set of constituents, referred to as "Appendix IV constituents," are evaluated. Sampling and resampling of wells occurs through October 2018, and a statistical evaluation needs to be completed by January 2019. If statistically significant increases are observed, then different paths are taken depending on whether the exceedance is observed at CCR landfill versus a CCR surface impoundment and whether the relevant surface impoundment is deemed "lined" versus "unlined." The 2015 CCR Rule required owners and operators of a CCR surface impoundment to document whether or not each CCR surface impoundment was constructed with the liner requirements of the rule no later than October 17, 2016. 40 CFR 257.71(a)(1). The documentation required certification by a professional engineer (PE).

An existing CCR surface impoundment is considered to be an unlined unit if compliance with the liner requirements cannot be documented. 40 CFR 257.71(a)(3). Under the Phase I CCR rule changes currently proposed by EPA, state agency officials could be empowered to make liner determinations in the absence of a PE certification, which could prove significant for older units that might lack the documentation necessary for a PE to be able to certify what the state agency might have previously concluded.

The designation of a CCR surface impoundment as "unlined" is critical insofar as unlined CCR surface impoundments will have to be discontinued to be used and ultimately closed if certain groundwater conditions are observed, whereas if the same groundwater conditions are observed in relation to a CCR landfill or lined surface impoundment, such units will not have to close as a result of those conditions but will have to take corrective action measures to address the groundwater contamination.

The timeline for discontinued use and ultimate closure of unlined units can vary depending on the closure path that is chosen, but the default rule is that an owner/operator of an unlined CCR surface impoundment must cease to place CCR and non-CCR waste within 6 months of making a determination that a constituent listed in Appendix IV is detected at statistically significant levels above the established groundwater protection standard. This could occur as early as July 2019. This timeline can, however, be extended if an alternative closure path is allowed because the owner/operator can certify that CCR must continue to be managed in the CCR unit due to the absence of both on-site and off-site alternative disposal capacity or that the facility will cease operation of the coal-based boilers no later than the dates specified in the



AMERICAN OVERSIGHT

rule, but lacks alternative disposal capacity in the interim. Under either of these situations, CCR units may continue to receive CCR so long as the conditions of the rule are satisfied.

Significantly, if the owner or operator has not identified alternative capacity within five years after the initial certification of a lack of capacity, the CCR units must cease receiving CCR and must initiate closure following the timeframes established in the CCR Rule. Therefore, unless an alternative is identified prior to the 5 year term, the CCR unit will have to cease receiving CCR by July 2024 and closure must be completed by July 2029, unless the requirements of a 2 year extension are met. If so, closure must be completed by July 2031.

Rule Costs

The costs of compliance with CCR regulations at power plants, closing ash ponds and non-compliant landfills, are substantial. A recent study of plant decommissioning costs suggests that environmental remediation can be more than fifty percent of decommissioning costs.[1] A study commissioned by the Office of Management and Budget in 2009 [2] estimated that closure-in-place of the 155 wet ash impoundments in the U.S. would cost about $39 billion over 10 years. Consider that $39 billion represents about 10 percent of total revenue generated by electricity sales in the U.S., according to the EIA. A more recent report [1] has suggested that these costs for closure may be even higher, because of the monitoring and remediation requirements in the updated CCR rule.

The Tennessee Valley Authority estimated the costs of closure-in-place for six of its wet coal ash impoundments (see table below). The total cost for these six plants is $0.28 billion, which is about 3% of TVA's total revenue from electricity sales for fiscal year 2016.

*Costs of Closure-In-Place at TVA Wet Coal Ash Impoundments. [Cited in Ref. 1]*

| Plant | Total Cost, $ | Cost per acre |
|---|---|---|
| Allen | $3,500,000 | $159,000 |
| Bull Run | $13,000,000 | $338,000 |
| Colbert | $10,000,000 | $192,000 |
| Sevier | $13,000,000 | $310,000 |
| Kingston | $40,000,000 | $1,290,000 |
| Widow's Creek | $200,000,000 | $571,000 |
| Total | $279,500,000 | $521,942 |

Duke Energy will close all its CCR facilities in the Carolinas. While Duke has not released closure costs for individual sites, it reported asset retirement obligations (AROs) associated with 35 CCR impoundments in the Carolinas of $4.24 billion (or $1,560,000 per acre). [3] For reference, Duke Energy's net income from the Carolinas was $1.2 billion in 2016.

Kentucky Utilities (KU) estimated in 2016 that the cost of compliance with both state and federal regulations to close surface impoundments at six of its plants (three operating and three closed plants) was $0.42 billion.[4] KU proposed to increase the cost of electricity to a portion of its municipal customers of up to 3.5 percent between 2016 and 2019.



AMERICAN OVERSIGHT

Thus, the cost of environmental compliance for coal-based power plants is substantial and rising, as utilities begin to assess the cost of complying with CCR requirements. These costs represent substantial liabilities that will, in many cases, be passed along to rate payers. The cost of compliance with the Effluent Limitation Guidelines (ELGs) will also be substantial, although it is harder to estimate this until EPA provides a promised review and revision of certain key provisions of the ELGs in 2019.

Recent Developments (as of publication of this NCC report)

On March 15, 2018, EPA published a proposed rule to amend the CCR Rule ("Phase I CCR Rule Changes). EPA proposed two general categories of changes – the first was associated with a judicial remand in connection with a settlement agreement that resolved four claims brought by two sets of plaintiffs against the final CCR Rule. The second category was a set of revisions that were proposed in response to the WIIN Act. Many commented on the propose rule that an extension of the deadlines is necessary in order for the benefits of the concepts in the proposed rule can be realized by CCR unit owners/operators.

On July 30, 2018, EPA published a rule finalizing key portions of the Phase I Proposal. EPA included in the final rule an extension of key deadlines and the adoption of two critical flexibility provisions that have the potential to significantly alleviate the burdens of the April 2015 CCR Rule. The EPA summary of the final rule provides a good overview of the changes:

*Amendments to the National Minimum Criteria Finalized in 2018 (Phase One, Part One)*

*EPA is finalizing certain revisions to the 2015 regulations for the disposal of CCR in landfills and surface impoundments to:*

*Provide states with opproved CCR permit programs under the Water Infrastructure Improvements for the Nation (WIIN) Act or EPA where EPA is the permitting authority the ability to use alternate performance standards;*

*Revise the groundwater protection standard for canstituents which do not have an established drinking water standard (known as a maximum contaminant level or MCL); and*

*Provide facilities which are triggered inta closure by the regulations additianal time to cease receiving waste and initiate closure.*

*More specifically, with this final rule, EPA is finalizing two types of alternative performance standards that were proposed in March 2018. The first one allows a state director (in a state with an approved coal ash permit program) or EPA (where EPA is the permitting authority) to suspend groundwater monitoring requirements if there is evidence that there is no potential for migration of hazardous constituents to the uppermost aquifer during the active life of the unit and post closure care. The second allows issuance of technical certifications in lieu of a professional engineer.*

*In addition, EPA is revising the groundwater protection standards for four constituents in Appendix IV to title 40 of the Code of Federal Regulations (CFR) part 257 for which MCLs under the Safe Drinking Water Act have not been established. EPA also is extending the deadline by which facilities must close coal ash units for two situations:*

*Where the facility has detected a statistically significant increase above a groundwater protection standard from an unlined surface impoundment; or*

*Where the unit is unable to camply with the location restriction regarding placement above the uppermost aquifer.*

*Provisions from the March 2018 praposed rule that are not finalized in this Federal Register notice will be addressed in a subsequent rulemaking.*



AMERICAN OVERSIGHT

Note that, in the last sentence, EPA indicated that there are some issues not addressed in this Phase I Final Rule that they anticipate addressing in a subsequent rulemaking. Noticeably absent from the Phase I Final Rule is their decision not to finalize the proposal to add Boron to the list of "Appendix IV Constituents," which has significant programmatic implications.

References:

[1] Raimi, D. Decommissioning US Power Plants – Decisions, Costs, Key Issues. Resources for the Future, October 2017. http://www.rff.org/research/publications/decommissioning-us-power-plants-decisions-costs-and-key-issues

[2] EOP Group. Cost Estimates for Mandatory Closure of Surface Impoundments Used for the Management of Coal Combustion Byproducts at Coal-Fired Electric Utilities. 2009.

[3] Duke Energy Corporation. 10-K Filing to the U.S. Securities and Exchange Commission. 2016.

[4] Federal Energy Regulatory Commission. Order Accepting and Suspending Revised Rate schedules and Establishing Limited Hearing and Settlement Judge Procedures, Docket No. ER 17-234-000, December 30, 2016.



AMERICAN OVERSIGHT

Appendix 3 – Additional Perspectives

## Appendix 3A. The reality of the shift towards a new power generation mix

### Coal Retirements and the Risky Dynamics Ahead

**Richard L. Axelbaum**

**Energy, Environmental & Chemical Engineering – Washington University St. Louis**

Understanding the potential impacts that changes to the generation mix can have on grid stability, reliability and resilience will be essential going forward since we are entering a new era of power generation, and there is no precedent to draw on for experience. The scenario in which renewable energy growth continues on its current trajectory for another two decades is examined here to provide a basis for understanding the system wide/macro implications. The approach used involves a simplified analysis that allows the basic dynamics to be understood and the implications to be realized. The results indicate that the present trajectory could rapidly lead to risks to grid reliability if not properly managed. To understand why this is so, first, the drivers for growth in wind and solar are discussed, and then the analysis is presented.

In the past decade, efforts to replace dispatchable fossil fuel energy with non-dispatchable wind and solar[1–4] have grown rapidly. More recently, these efforts have gained momentum to the extent that it is now common for cities and companies to set goals to be 100% renewable within the next 10-30 years [5]. This movement can be found among most branches of society, including businesses, government leaders, major philanthropists, environmentalists and academics [9-13]. The movement has become so mainstream that a large segment of the population believes that 100% renewables is possible in the near future [6]. Of course, since hydropower is quite limited, this implies that about 90% of our electricity would need to come from wind and solar [7], i.e., non-dispatchable energy. This perspective has contributed to a major push to retire coal plants and replace them with wind and solar. The conviction that 100% renewables is achievable in the near future has also given rise to opposition for new natural gas pipelines, as they are considered unnecessary [14].

What are the implications of building massive amounts of Intermittent Renewable Energy (IRE), while at the same time retiring dispatchable coal plants? Is it a serious problem or can the system naturally support this transition to a new energy paradigm? The model below illustrates the scenario using some conservative assumptions.

First, consider Figure 1, where the increased penetration of wind and solar is shown over time. The solid red curve represents the IRE production in the U.S. since 2000 [8]. While the growth in IREs was nearly 20% in 2017, the dashed red curve represents an extrapolation based on a more *modest 10% annual growth*. This curve shows the mean production of IRE, not instantaneous production. The production lows associated with wind and solar generation are represented by a deviation from the mean during times of unfavorable conditions (for example, low or excessive wind speeds), represented by the black dotted curve. In this example, this curve represents 50% lower production compared to the average. Of course, the production of wind and solar can and does drop to less than 50% of the mean, but for the purposes of illustration we will *assume that it can only drop to 50% of the mean* for any significant length of time (say a few days or a week). The black dotted curve indicates how much energy can be produced during those periods of low IRE production.



AMERICAN OVERSIGHT

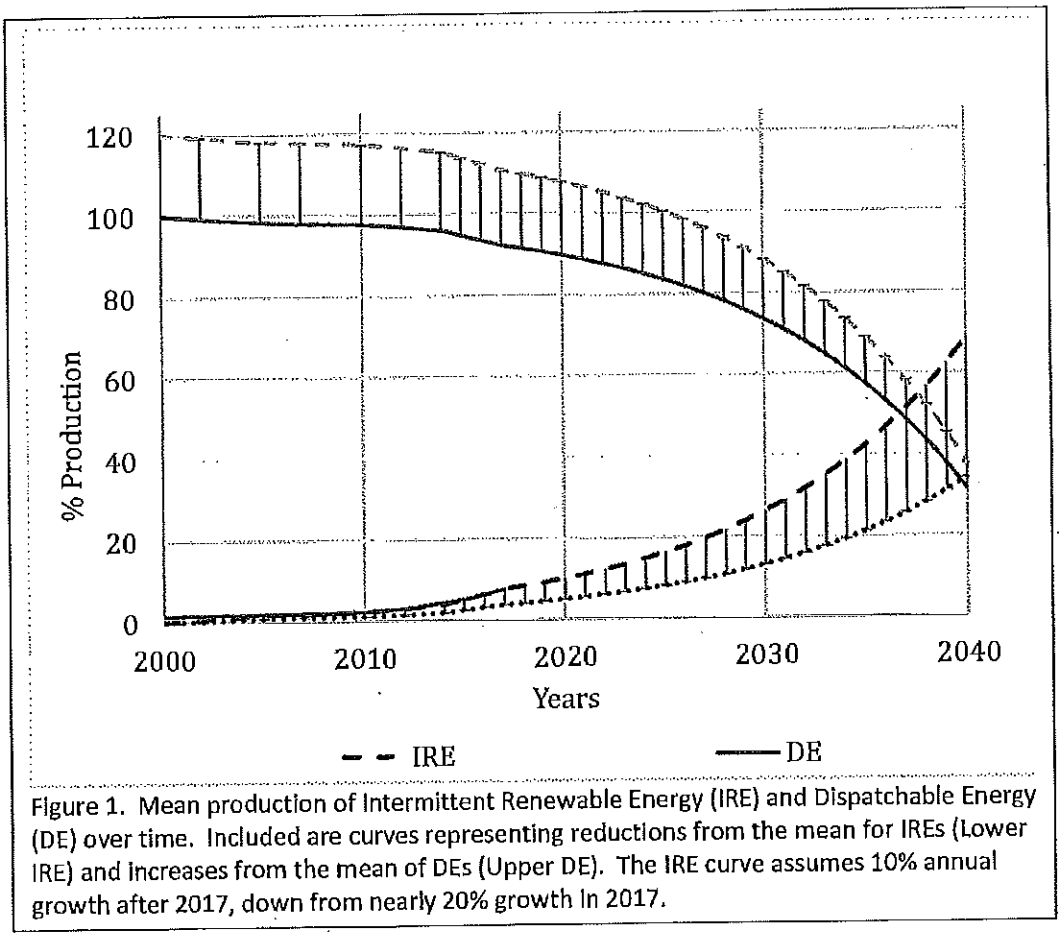



Figure 1. Mean production of Intermittent Renewable Energy (IRE) and Dispatchable Energy (DE) over time. Included are curves representing reductions from the mean for IREs (Lower IRE) and increases from the mean of DEs (Upper DE). The IRE curve assumes 10% annual growth after 2017, down from nearly 20% growth in 2017.

To illustrate the intermittency of IRE, Figure 2 shows the energy produced in the UK from wind during the end of May and early June of this year [15-16]. While wind resources are plentiful in the coastal regions in England, wind production went from supplying 20% of UK energy to less than a few percent and stayed that way for over a week. The black dotted curve in Figure 1 depicts such a phenomena but assumes that the drop is only 50% less than the mean production rate, which theoretically could be accomplished with significant battery resources. A key point here is that *there must be a dispatchable resource that can make up for the lost production during these periods of low IRE production*. More importantly, the *absolute* amount of energy that needs to be made up grows as the amount of IRE grows (see Figure 1).

Now consider the orange curve in Figure 1. This curve represents the reduction in dispatchable energy (DE) that occurs due to, for example, coal and nuclear retirements, and reflects the natural trend in retirements that occurs as IRE grows. In other words, as more IREs are brought into the grid, the average annual energy produced from dispatchable resources will decrease, because those plants that are no longer economical to run will be retired for financial reasons. This represents the phenomena the country is facing now. For this example, the sum of the IRE and the DE curves always adds up to 100%, as this is the natural state of the



AMERICAN OVERSIGHT

economic drivers, i.e., excess capacity will not exist without policy incentives. The dotted green curve above this curve represents the added capacity that is available from these DE sources by running them at a capacity over their mean. For the curve in Figure 1, this is assumed to be 20%. Note that for the purpose of this illustration, many assumptions have been made, and the impact of these assumptions on the conclusions will be considered later.

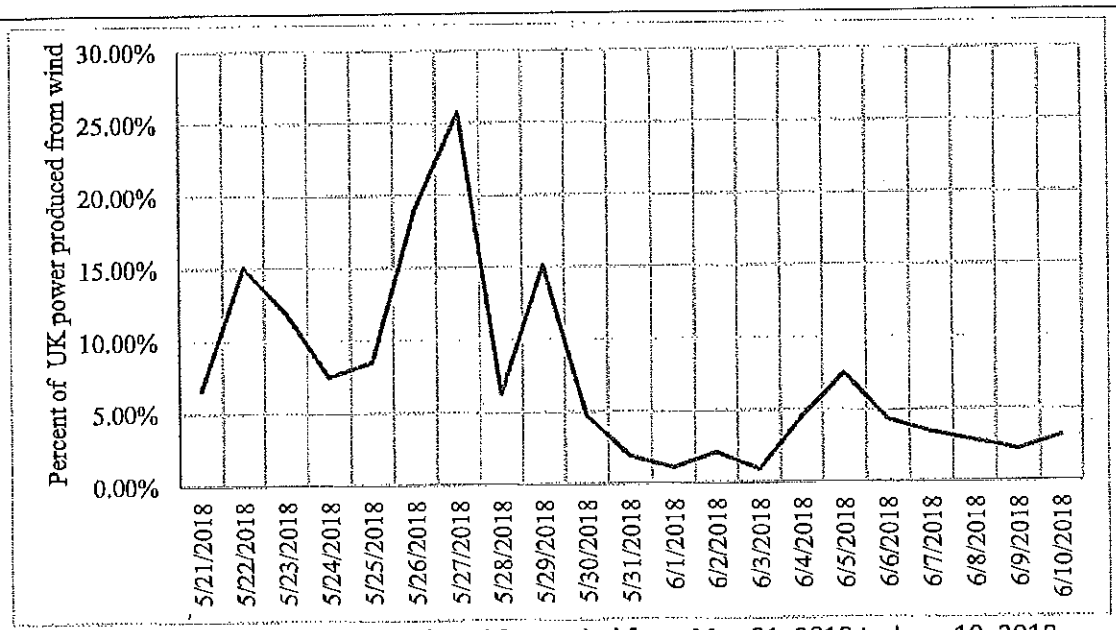


Figure 2: Percent of UK power produced from wind from May 21, 2018 to June 10, 2018.

**An important point to note is that as the number of coal plants is reduced, the *absolute* amount of energy that *can be made up* by ramping them up reduces as well. Similarly, as the amount of IRE is increased, the *absolute* amount of energy that *needs to be made up* during the lulls increases.**

While the above idea is shown in Figure 1, further analysis can identify certain conditions where the reliability of power availability becomes at risk. This is not an effort to quantify the precise timing or risk magnitude, which is a much more complex analysis. Rather the analysis that follows illustrates, for a given set of assumptions, when the risk of falling short of power starts to increase dramatically. The overarching point is that as the mix of generation sources changes, the risk to power reliability undergoes a sudden, steep and irreversible increase.

Figure 3 illustrates the consequences of the increase in intermittent energy as dispatchable energy drops shown in Figure 1. With increasing IRE penetration, and the subsequent retirement of dispatchable plants, there is a risk that a short-term fall off in IRE production may not be able to be made up by available DE resources.

The potential of falling short of power is characterized here by a risk factor, RF. For the purposes of this illustration, RF will be defined as RF = D/ (AC - D), where D is the demand and



AMERICAN OVERSIGHT

AC, Available Capacity, is the maximum amount of electricity that can be produced from both DE and IRE resources when the DEs are supplying their maximum and the IREs are supplying their assumed minimum. The denominator then represents the excess capacity that would be available if IRE production is further limited (such as in the UK discussion above). This definition of RF captures the dynamic that when available capacity is much larger than demand, the risk factor is low, and when it approaches demand, risk of electricity being unavailable rises rapidly. As an example, if there is an 80%/20% split of DE and IRE resources in the generation mix and DE production can be increased by 20% of its mean and IRE production can drop by 50% of its mean (i.e., the conditions of Figure 1), the available capacity will be %DE*1.2+ %IRE*0.5 = 106, which gives a risk factor of about 16%. The RF gradually increases with time initially, as IRE growth follows the 10% annual path shown in Figure 1, and eventually shows a rapid and dramatic increase, indicating a high likelihood of power shortfall.

Several scenarios of varying IRE/DE proportions are shown in Figure 3 to evaluate the impact of the various assumptions that have been made, to observe how the mix and range of IRE/DE plays out. For all of these scenarios the growth in IRE capacity is taken as that depicted in Figure 1 (i.e., 10% annual growth in IRE). The conditions labeled IRE50/DE20 represents the conditions shown in Figure 1 (i.e., IRE production can fall to 50% of its mean and the DE production can be increases 20% above its mean capacity.) The extreme increase in risk occurs at a different point in time, but is nonetheless a dramatic change in the relatively near future.

*The key point to bring out from this analysis, is that the change from a safe, reliable grid to an unreliable grid transitions rapidly (i.e., as IRE penetration increases the risk factor rises rapidly to a condition where the potential of falling short of power is high).*

More optimistic scenarios, such as IRE30/DE40, are also considered in the figure. For IREs to never fall below 30% from the mean (IRE30) would require massive battery installations. Also, in this case the DEs are assumed to be able to ramp up 40% more than their mean capacity (DE40). Note that new dispatchable plants typically operate at a capacity factor between 70-85%. The DE40 assumption implies that these plants are typically running at only 50-60% of their rated capacity. This is an uneconomical way of producing electricity and for anything much below this, the plant would be a candidate for retirement.

As can be seen from Figure 3, for all of these scenarios the general shape of the curve remains the same, in that there is limited risk followed by a rapid rise in risk; only the date for the rapid rise changes. Thus, with the present push to rapidly expand IREs, while simultaneously retiring coal plants, there can be a sudden change in the stability of the grid, unfelt until it may be too late. Of course, replacing coal with natural gas can reduce these risks, but it is clear that public opinion is beginning to view natural gas plants as unnecessary [17], making a major expansion of natural gas pipelines unlikely. Also, as pointed out elsewhere in this report, winter demand, gas pipeline bottlenecks and rising exports suggest that natural gas will not be able to curtail this situation, especially recognizing the rate at which risk factor curves in Figure 3 rise.

This analysis, while simplistic, identifies an important dynamic that should be considered in determining policy, particularly when considering the strong public sentiment of wanting to shift to a grid based on wind and solar. **The key finding is that the transition from a reliable to unreliable gird can occur quite rapidly.** Often advocates of 100% renewables will point to times of severe weather conditions, such as a heat wave or cold spell, where the grid was able to satisfactorily supply electricity, and then this example is used as a demonstration that the



AMERICAN OVERSIGHT

EXT-18-2615-G-000450

grid can safely handle the addition of more wind and solar. The analysis outlined here shows that there is a potential risk associated with extrapolating that argument to future times.

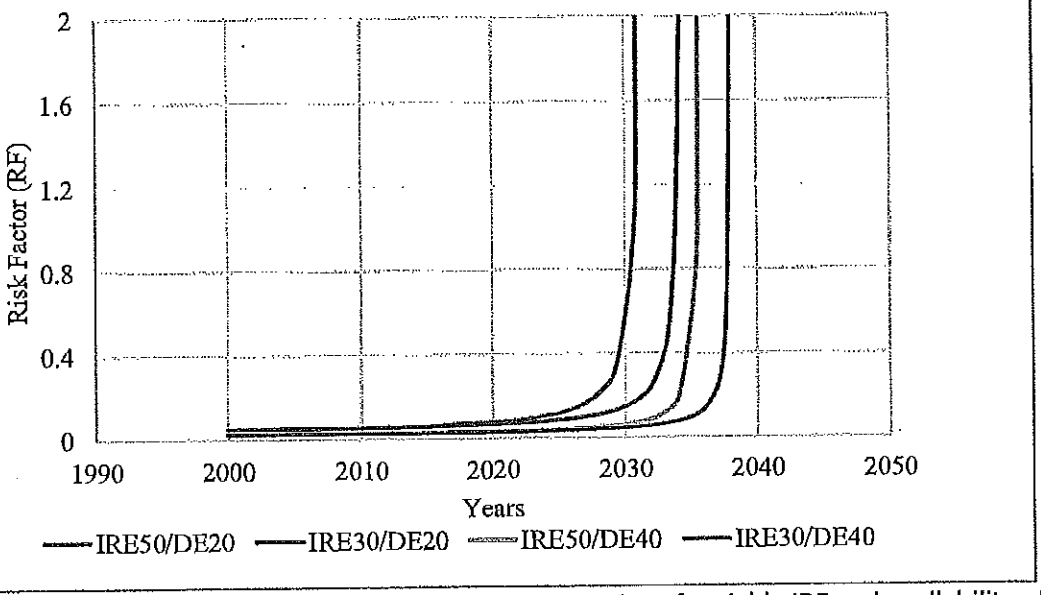



Figure 3: The Risk factor associated with various scenarios of variable IRE and availability of dispatchable energy.


References:

[1] M. A. Delucchi and M. Z. Jacobson, "Providing all global energy with wind, water, and solar power, Part II: Reliability, system and transmission costs, and policies," *Energy Policy*, vol. 39, no. 3, pp. 1170–1190, 2011.

[2] M. Z. Jacobson and M. A. Delucchi, "Providing all global energy with wind, water, and solar power, Part I: Technologies, energy resources, quantities and areas of infrastructure, and materials," *Energy Policy*, vol. 39, no. 3, pp. 1154–1169, 2011.

[3] M. Z. Jacobson, M. A. Delucchi, M. A. Cameron, and B. A. Frew, "Low-cost solution to the grid reliability problem with 100% penetration of intermittent wind, water, and solar for all purposes," *Proc. Natl. Acad. Sci.*, vol. 112, no. 49, pp. 15060–15065, 2015.

[4] M. Wright and P. Hearps, "Zero Carbon Australia Stationary Energy Plan," *Energy*, vol. 2011, p. 171, 2010.

[5] Sierra Club, "2017 Case Study Report : Cities Are Ready For 100% Clean Energy," p. 32, 2017.

[6] B. Y. C. Funk and B. Kennedy, "Cary Funk and Brian Kennedy," pp. 1–114, 2016.

[7] U. S. E. I. Administration, "Annual Energy Outlook 2018 with projections to 2050," *J. Phys. A Math. Theor.*, vol. 44, no. 8, pp. 1–64, 2018.

[8] Monthly Energy Review , EIA, 2018 "Energy."

[9] https://www.apple.com/newsroom/2018/04/apple-now-globally-powered-by-100-percent-renewable-energy/

[10] https://aws.amazon.com/about-aws/sustainability/

[11] https://environment.google/projects/announcement-100/

[12] https://www.microsoft.com/en-us/environment/energy

[13] https://news.samsung.com/global/samsung-electronics-to-expand-use-of-renewable-energy

[14] https://www.usatoday.com/story/money/business/2015/05/17/loveless-dominion-natural-gas-keystone/27401527/

[15] http://www.ref.org.uk/fuel/index.php?tab=day&pd=M&valdate=Jan-18&share=N

[16] https://www.nationalgrid.com/uk/electricity/market-operations-and-data/data-explorer

[17] J. Clemente "What Happens When You Don't Build Natural Gas Pipelines? Forbes, Jan 7, 2018




AMERICAN OVERSIGHT

EXT-18-2615-G-000451

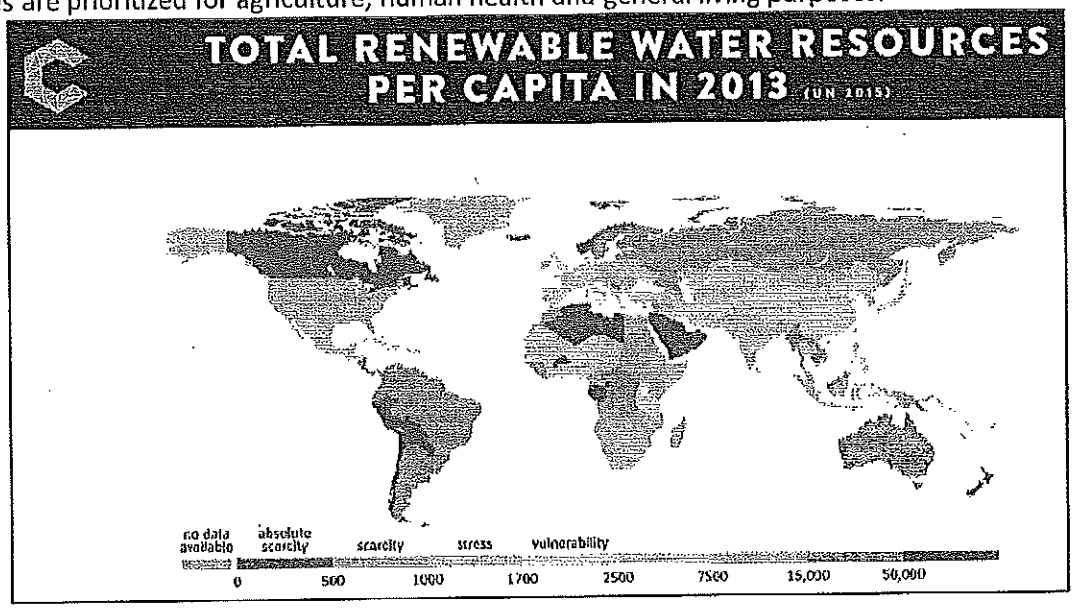
## Appendix 3B. Energy-Water Nexus – Western Research Institute

The Asia-Pacific Economic Cooperation (APEC) October 2017 Water-Energy Nexus Expert Workshop report [1] highlighted the following two areas of concern that hinder coal power competitiveness due to local water scarcity conditions and market competition factors.

1. **Low/Zero Water Consumption-based Power Choice Selection** – An important trend in energy choice selection is the impact on local water supplies and infrastructure.

Dr. Andrew Minchener OBE, General Manager for the International Energy Agency Clean Coal Centre summarized the water scarcity challenges [2], "Global water demand in the energy sector is rising due to economic growth and population increase, increasing urbanization and industrialization, higher standards of living, and greater food demand. Many parts of the APEC region are experiencing serious water stress, as well as parts of Europe and Africa. In the APEC region, China particularly faces an imminent water scarcity risk."

The following figure illustrates the water scarcity severity and hence the competitive risk to coal power plants from low/zero water consuming electric power technologies as limited local water supplies are prioritized for agriculture, human health and general living purposes.

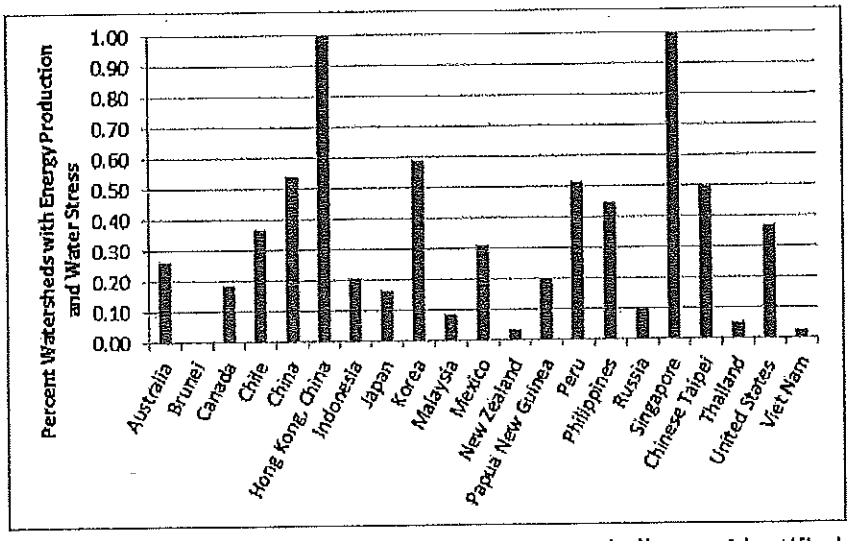



Dr. Vincent Tidwell described how electric power choice analyses are including water consumption as an important selection criterion when comparing different options for meeting electricity needs [3]. Tidwell showed the following chart to illustrate the Energy-Water Risk situation for key countries around the world that include export market opportunities for U.S. thermal coals.



AMERICAN OVERSIGHT

# Energy-Water Risk




2. **Water Efficiency and Coal Plant Efficiency Nexus** – Key water challenges identified during the APEC Water-Energy Nexus Expert Workshop [1] are as follows:

"The challenges are where to source water from, how to reduce the amount of water consumption, and how to limit the wastewater discharge. One of the key water conservation solutions is to identify potential alternatives to using fresh water for cooling, such as municipal wastewater, mine water, and seawater. Another solution is to reduce consumption of water by implementing technologies such as dry cooling. The dry-cooling solution helps minimize wastewater generation within the plant while supporting environmental sustainability.

Coal-based power generation is one of the primary factors that contributes to water resource constraints in the APEC region. Coal users are concentrated in developing economies, which creates demand for capacity building to address the water-energy nexus issue in coal-based power generation. However, each region and economy faces different water issues, thus there is no "one size fits all" solution.

In China, water resources are unevenly distributed - Northern China has a particularly high level of water risk. It is projected that China faces a water deficit of 200 billion m3 by 2030. China has implemented a water allocation plan, which sets a quota on water usage at the province level, but it still needs more work to conserve water, such as seeking non-fresh water sources for cooling in the coal-based power generation sector.

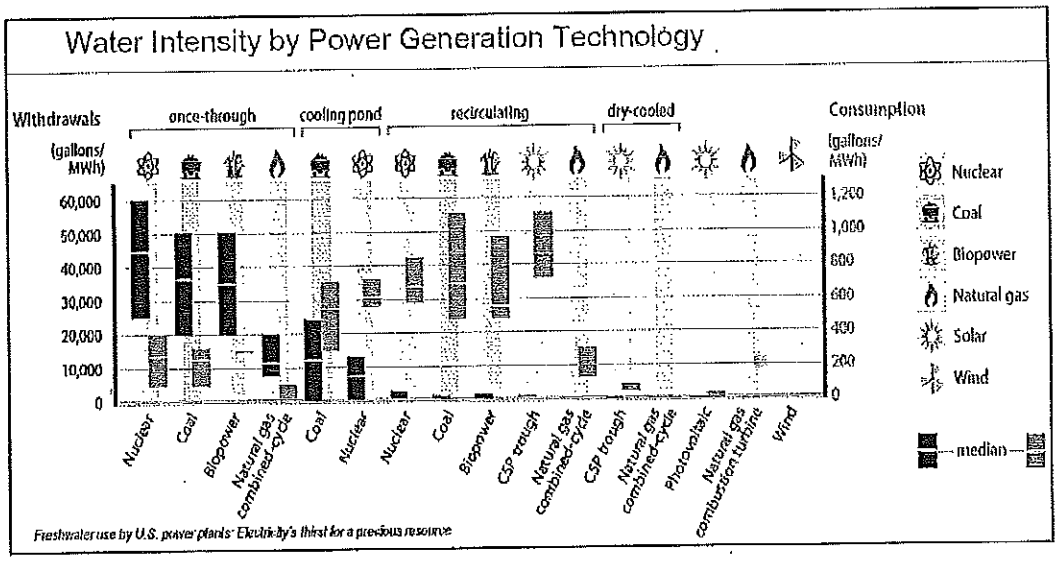
The United States is a highly populated yet relatively water-rich economy. However, the coal-based power generation sector primarily depends on fresh water withdrawals for cooling, and nearly every region of the United States has experienced water constraints. The United States has a sustainability goal in place, but there is a need to implement coordinated efforts to achieve an effective and comprehensive approach to address water-energy nexus issues.



AMERICAN OVERSIGHT

"The availability of fresh water is becoming an issue in many parts of the world. It is important to reduce the burden on fresh water supplies by reducing their consumption and utilizing alternative water resources. The coal-based power generation sector is the key focus for reducing water consumption. In certain cases, with a suitably designed on-site water treatment plant, a coal-based power plant has the potential to become a supplier of both electricity and fresh water."

Mr. Neil Kern of Duke Energy shared the following chart depicting water intensity for various power generation technologies and reported [4], "Maintaining reliability and cost efficiency in power plant operation is the highest priority for U.S. utility companies. There are no incentives to take extra steps such as water conservation, except for effluent discharge control for regulatory compliance and to promote local sustainability. Up until now, water efficiency has only become a priority at Duke during periods of drought, but there is movement toward making it a standard part of planning."




Mr. Kern also provided historical data on past drought conditions and trends for the Southeast U.S. [4] that highlight periods when water consumption by coal and nuclear power plants posed risks to both water and electric power availability for local economies that is driving increased deployment of low/zero water power technologies and necessitates accelerating research and development (R&D) to improve coal power water use efficiency, recycle/reuse, water consumption reduction and non-water cooling technologies.

Ms. Patricia Rawls of the National Energy Technology Laboratory described the current R&D supported by the Department of Energy (DOE) [5] with the grand challenges of:

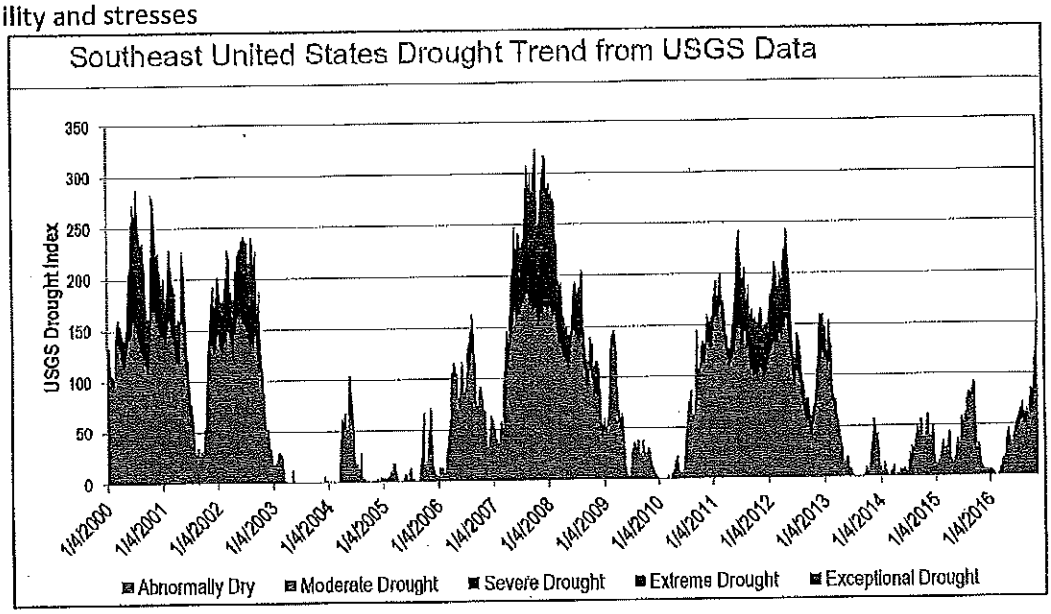
- Develop technologies for power plants that:
  - Reduce discharge of water effluent from the plant
  - Reduce fresh water consumption into the plant
  - Reduce treatment costs compared with commercially available options



AMERICAN OVERSIGHT

• Develop technologies that will enable plant to comply with current and potential future water regulations

• Understand and predict shortfalls in thermoelectric power generation due to water availability and stresses




**Conclusions/Recommendations:**

- Water scarcity is a concern for several countries considered to be viable export markets for U.S. thermal coals, especially in developing economies where both energy and food consumption are growing rapidly.
- Electric power choice analyses are increasingly comparing low/zero water electric generation technologies such as photovoltaic solar and wind to address/mitigate local water scarcity risks which highlights the need to lessen water consumption for coal power to be competitive in water-scarcity markets, and to not be excluded from such markets do to a lack of technological capabilities.
- DOE can assist coal power competitiveness by continuing to invest in and accelerate technologies to lower coal power plant water consumption, increase water recycle/reuse, and enable non-water cooling technologies. The need for coal cooling and water technological advancements is even more vital when considering the additional water consumption expected for deployment of CCUS technologies.

**References:**


1. "APEC Water-Energy Nexus Expert Workshop Report, APEC Energy Working Group, December 2017, APEC Project: EWG 07 2015A, https://www.apec.org/Publications/2017/12/APEC-Water-Energy-Nexus-Expert-Workshop-Report
2. Dr. A. Minchener OBE, "Overview of the Global Coal Utilisation – Water Nexus", October 2017 APEC Water-Energy Nexus Expert Workshop
3. Dr. V. Tidwell, "Integrated Energy-Water Planning", October 2017 APEC Water-Energy Nexus Expert Workshop
4. N. Kern PE, "Water Management in the Power Generation Sector", October 2017 APEC Water-Energy Nexus Expert Workshop
5. P. Rawls, "Crosscutting Research Program: Water Management Research & Development", October 2017 APEC Water-Energy Nexus Expert Workshop




AMERICAN OVERSIGHT

[i] American Coalition for Clean Coal Electricity, "Retirement of Coal-Fired Electric Generating Units", August 2018, see Appendix 2A of this report.

[ii] The Contribution of the Coal Fleet to America's Electricity Grid, PA Consulting Group for ACCCE, August 2017. Reference cited is National Academy of Sciences, Engineering, and Medicine report on Enhancing the Resilience of the Nation's Electricity System.

[iii] PA Consulting, "Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type," August 2017.

[iv] PJM Interconnection, "PJM's Evolving Resource Mix and System Reliability," March 30, 2017.

[v] PA Consulting, "Qualitative Comparison of Grid Reliability and Resilience Attributes by Fuel Type," August 2017.

[vi] ACCCE Coal Facts – http://www.americaspower.org/wp-content/uploads/2018/03/Coal-Facts-August-31-2018.pdf

[vii] ACCCE Coal Facts – cited reference EIA, Electric Power Monthly, February 2018.

[viii] National Mining Association, U.S. Coal Industry Statistics, https://nma.org/wp-content/uploads/2017/12/c_most_requested.pdf

[ix] ACCCE Coal Facts – cited reference EIA Annual Coal Report, November 2017 & National Mining Association, The Economic Contributions of U.S. Mining (2015 Update).

[x] PA-ACCCE Aug 2017.

[xi] John Miller, "How Important is Baseload Generation Capacity to U.S. Power Grids' Reliability?" The Energy Collective, 10-11-2017

[xii] DailyMail.com, "Britain Becalmed, Turbines across the UK are at a STANDSTILL after wind 'disappears' for a week causing a two-year low in electricity production," June 13, 2018.

[xiii] Bloomberg Power, "Britain Has Gone Nine Days Without Wind Power," June 7, 2018.

[xiv] IER, ibid.

[xv] EPRI, Program on Technology Innovation: Fossil Power Plant Cost and Performance Trends, August 31, 2006, https://www.epri.com/#/pages/product/1014405/?lang=en; see also NETL presentation on "Characterizing and Modeling Cycling Operations in Coal-fired Units," June 2016, https://www.eia.gov/outlooks/aeo/workinggroup/coal/pdf/EIA%20coal-fired%20unit%20workshop-NETL.pdf

[xvi] NERC Testimony, Senate Energy & Natural Resources Committee Hearing to Examine the Performance of the Electric Power System Under Certain Weather Conditions, January 23, 2018, https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=D982B4F9-ECAF-403B-88BA-C82D2634E2DA.

[xvii] North American Electric Reliability Corporation, 2018 Summer Reliability Assessment.

[xviii] PJM Interconnection, PJM's Evolving Resource Mix and System Reliability, March 30, 2017.

[xix] DOE Staff Report, op. cit.

[xx] IHS Markit, "Ensuring Resilient and Efficient Electricity Generation: The value of the current diverse US power supply portfolio," September 2017.

[xxi] EIA, Annual Energy Outlook 2018.

[xxii] Energy Information Administration, https://www.eia.gov/coal/reserves

[xxiii] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[xxiv] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[xxv] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[xxvi] Eurostat Electricity Price Statistics, http://ec.europa.eu/eurostat/statistics-explained/images/6/6e/Electricity_prices_2017s1_update_28_11_2017-final.xlsx

[xxvii] EIA Electric Power Monthly, June 2018

[xxviii] Eurostat op. cit.

[xxix] EIA Electric Power Monthly, op. cit.



AMERICAN OVERSIGHT

[xxx] Robert Bryce, "Maintaining the Advantage: Why the U.S. Should Not Follow the EU's Energy Policies," Center for Energy and the Environment at the Manhattan Institute, February 2014

[xxxi] EIA Form EIA-923 data and U.S. Bureau of Economic Analysis data

[xxxii] U.S. EIA Forms EIA-860 and EIA-923 data

[xxxiii] U.S. EIA Form EIA-860 data

[xxxiv] "Staff Report on Electricity Markets and Reliability" US Department of Energy August 2017.

[xxxv] NYMEX at CME.com

[xxxvi] National Coal Council, "Leveling the Playing Field: Policy Parity for CCS Technologies," November 2015, http://www.nationalcoalcouncil.org/studies/2015/Leveling-the-Playing-Field-for-Low-Carbon-Coal-Fall-2015.pdf

[xxxvii] EIA, "Direct Federal Financial Interventions and Subsidies in Energy in Fiscal Year 2016," April 2018, https://www.eia.gov/analysis/requests/subsidy/pdf/subsidy.pdf

[xxxviii] Congressional Research Service, Molly Sherlock and Jeffrey Stupak, "Energy Tax Incentives: Measuring Value Across Different Types of Energy Resources," March 19, 2015, https://www.fas.org/sgp/crs/misc/RA1953.pdf.

[xxxix] American Coalition for Clean Coal Electricity, op. cit.

[xl] "Staff Report on Electricity Markets and Reliability", US Department of Energy August 2017

[xli] http://www.dsireusa.org/

[xlii] http://aceee.org/blog/2016/01/electricity-savings-keep-rising-year

[xliii] http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx

[xliv] Carbon Utilization Research Council, http://www.curc.net/curc-epri-advanced-technology-roadmap-1

[xlv] www.curc.net

[xlvi] The Hill, January 17, 2018, http://thehill.com/opinion/energy-environment/369386-germany-shows-how-shifting-to-renewable-energy-can-backfire

[xlvii] Reuters, October 24, 2017, https://www.reuters.com/article/germany-electricity-retail/german-household-power-prices-at-record-high-verivox-idUSL8N1MZ30X

[xlviii] News.com.au, February 10, 2017, https://www.news.com.au/technology/environment/why-south-australias-blackouts-are-a-problem-for-us-all/news-story/bc3bbc8be17d80844bc05ab7f5760d56

[xlix] ABC News, June 27, 2017, http://www.abc.net.au/news/2017-06-28/sa-has-most-expensive-power-prices-in-the-world/8658434

[l] Financial Post, October 26, 2017, https://business.financialpost.com/commodities/energy/ontario-household-electricity-prices-to-rise-52-per-cent-from-2017-to-2035

[li] Fraser Institute in the Toronto Sun, April 17, 2018, https://www.fraserinstitute.org/article/ontarios-power-price-crisis-how-did-it-happen-and-who-got-hurt

[lii] Utility Dive, https://www.utilitydive.com/news/americans-could-pay-more-for-clean-energy-but-will-they-really/372381/

[liii] EIA, Annual Energy Outlook 2018.

[liv] https://about.bnef.com/new-energy-outlook/

[lv] EIA, Annual Energy Outlook 2018.

[lvi] https://www.forbes.com/sites/jeffmcmahon/2018/05/09/coal-collapsing-faster-under-trump-wind-solar-gas-to-benefit/#1a274c5b5ee4 (hereinafter Forbes2018).

[lvii] EIA, Annual Energy Outlook 2018.

[lviii] Balash, P. et al, "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units, Volume I: The Critical Role of Thermal Units during Extreme Weather Events," March 2018, DOE/NETL-2018/1883 (hereinafter NETL 2018).

[lix] California State Profile and Energy Estimates (EIA 2018) (available at https://www.eia.gov/state/?sid=CA#tabs-4).

[lx] SNL, "Update: California's Quiet Market for Coal," October 2015, available at: https://www.snl.com/InteractiveX/Article.aspx?cdid=A-34113318-14128



AMERICAN OVERSIGHT

[lxi] George State Profile and Energy Estimates (EIA 2018) (available at https://www.eia.gov/state/?sid=GA#tabs-4).

[lxii] See, e.g., http://pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2017%20IRP%20Update/2017_IRP_Update.pdf.

[lxiii] Id. Forbes 2018

[lxiv] Righetti, T., Godby, R., Echeverri, D., Stoellinger, T., Coddington, K. "The Role of Energy Models: Characterizing the Uncertainty of the Future Electricity System to Design More Efficient and Effective Laws and Regulations,"8 Geo. Wash. J. of Energy & Envtl. L. 56 (2017).

[lxv] Figure by Emission Strategies, Inc. Data sources: Id. AEO2018, Id. Forbes 2018, Id. NETL2018, and https://rhg.com/research/taking-stock-2018/

[lxvi] EIA Annual Energy Outlook 2018, https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf

[lxvii] Id NETL2018, Exhibit 2-6.

[lxviii] National Academy Press, https://www.nap.edu/catalog/18250/emerging-workforce-trends-in-the-us-energy-and-mining-industries

[lxix] https://www.epa.gov/stationary-sources-air-pollution/proposal-affordable-clean-energy-ace-rule

[lxx] Putting the Puzzle Together, prepared by the State $CO_2$-EOR Deployment Working Group, 2016, see Figure 10, http://www.betterenergy.org/wp-content/uploads/2018/02/PolicyDriversCO2_EOR-V1.1_0.pdf

[lxxi] Apple Press release, "Apple now globally powered by 100 percent renewable energy" April 9, 2018 and CleanTechnica, Joshua S Hill, "Are Google & Apple Really "Powered" By Renewables? Understanding Corporate 100% Renewable Energy Policies" April 29th, 2018

[lxxii] U.S. DOE/NETL, "Reliability, Resilience and the Oncoming Wave of Retiring Baseload Units, Volume I: The Critical Role of Thermal Units During Extreme Weather Events," March 13, 2018. All quotes and graphics from this source.

[lxxiii] See National Coal Council, "Reliable & Resilient: The Value of Our Existing Coal Fleet," May 2014 for a similar assessment of the Polar Vortex, winter 2013-2014, http://www.nationalcoalcouncil.org/reports/1407/NCCValueExistingCoalFleet.pdf

[lxxiv] National Coal Council, "Leveling the Playing Field: Policy Parity for Carbon Capture and Storage Technologies," November 2015, http://www.nationalcoalcouncil.org/studies/2015/Leveling-the-Playing-Field-for-Low-Carbon-Coal-Fall-2015.pdf

[lxxv] https://www.epa.gov/sites/production/files/2018-08/documents/ace_nsr.pdf

[lxxvi] U.S. House of Representatives, Energy & Commerce Subcommittee on the Environment, February 14, 2018, https://energycommerce.house.gov/hearings/new-source-review-permitting-challenges-manufacturing-infrastructure/

[lxxvii] U.S. House of Representatives, Energy & Commerce Subcommittee on the Environment, May 16, 2018, https://energycommerce.house.gov/news/press-release/subenvironment-examines-legislation-addressing-new-source-review-permitting-reform/

[lxxviii] U.S. House of Representatives, H.R. 5270 https://www.congress.gov/bill/115th-congress/house-bill/5270/text; U.S. Senate, S. 2677 https://www.congress.gov/bill/115th-congress/senate-bill/2677; U.S. Senate, S. 2681 https://www.congress.gov/bill/115th-congress/senate-bill/2681

[lxxix] The full text of the 2018 Bipartisan Budget Act is available at https://www.cnn.com/2018/02/08/politics/bipartisan-budget-deal-text/index.html

[lxxx] Carbon Capture Coalition, http://carboncapturecoalition.org/legislation.

[lxxxi] IEA, 2012. CCS Retrofit: Analysis of the Globally Installed Coal-Fired Plant Fleet," p. 20 https://www.iea.org/publications/freepublications/publication/CCS_Retrofit.pdf

[lxxxii] "Advancing Large Scale Carbon Management: Expansion of the 45Q Tax Credit" (Energy Futures Initiative, May 2018) (available at https://static1.squarespace.com/static/58ec123cb3db2bd94e057628/t/5b0604f30e2e7287abb8f3c1/1527121150675/45Q_EFI_5.23.18.pdf)



AMERICAN OVERSIGHT

[lxxxiii] Rhodes, J. "New Federal Budget Puts Price on Carbon: Expanded Carbon Credit Could Spur New Coal Power Investment" (The University of Texas at Austin Energy Institute, Mar. 9, 2018) (available at https://energy.utexas.edu/news/new-federal-budget-puts-price-carbon)

[lxxxiv] U.S. Senate, S. 843, https://www.congress.gov/bill/115th-congress/senate-bill/843

[lxxxv] U.S. Senate, S. 2005, https://www.congress.gov/bill/115th-congress/senate-bill/2005

[lxxxvi] National Coal Council, "Leveling the Playing Field," op. cit.

[lxxxvii] https://www.netl.doe.gov/research/coal/carbon-storage-1/program-support/natcarb-index

[lxxxviii] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2016

[lxxxix] https://www.netl.doe.gov/research/oil-and-gas/enhanced-oil-recovery/gas-flooding

[xc] https://www.ogj.com/articles/2017/09/ccs-must-clear-financial-obstacles-to-move-beyond-eor-witnesses-say.html

[xci] U.S. Department of Energy, National Energy Technology Laboratory, Carbon Storage Assurance Facility Enterprise (CarbonSAFE) Initiative, https://www.netl.doe.gov/research/coal/carbon-storage-1/storage-infrastructure/carbonsafe

[xcii] Galik, C. et seq. "The Role of Public Lands in a Low-Carbon Economy" (Duke University, March 2010) (available at https://nicholasinstitute.duke.edu/sites/default/files/publications/the-role-of-public-lands-in-a-low-carbon-economy-paper.pdf)

[xciii] "Storage of Captured Carbon Dioxide Beneath Federal Lands" (NETL, May 2009) (available at https://www.netl.doe.gov/File%20Library/Research/Energy%20Analysis/Coal/Fed-Land_403-01-02_050809.pdf)

[xciv] https://www2.usgs.gov/climate_landuse/carbon_seq/

[xcv] https://www.congress.gov/115/bills/hr4476/BILLS-115hr4476ih.pdf

[xcvi] Senator John Barrasso, S. 2776 PURPA Reform, https://www.barrasso.senate.gov/public/index.cfm/news-releases?ID=94E5B11C-CA6E-40A3-A6C8-CEBACD119635

[xcvii] https://pubs.naruc.org/pub/35409F29-0A60-FF1C-39C2-9985EDFCF478

[xcviii] Kent Zammit, Viability and Impacts of Implementing Various Power Plant Cooling Technologies, 2012 Technical Report, Electric Power Research Institute (EPRI) (Oct. 2012) ii and 3-1.

[xcix] Carey King, et al., Water Demand Projections for Power Generation in Texas, prepared for Texas Water Development Board (Aug. 2008) 25.

[c] Zammit at 5-2.

[ci] Zammit at 5-2.

[cii] See Outdoor Water Use in the United States, WaterSense, available at: http://www.epa.gov/WaterSense/pubs/outdoor.html (last accessed Jan. 30, 2013); *see also* Indoor Water Use in the United States, WaterSense, available at: http://www.epa.gov/watersense/pubs/indoor.html (last accessed Jan. 30, 2013).

[ciii] *See* U.S. Geological Survey, Trends in thermoelectric-power withdrawals and population, 1950-2005, available at: http://ga.water.usgs.gov/edu/wupt.html (last accessed Jan. 30, 2013).

[civ] Electric Power Research Institute, *Trend for Water Consumption per Unit Energy* (2012)

[cv] FERC Website.

[cvi] FERC website

[cvii] ACCCE, Retirement of U.S. Coal-Fired Electric Generating Units – Status as of May 1, 2018.

[cviii] Ibid.

[cix] Staff of the Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2016-2020*, Prepared for the House Committee on Ways and Means and the Senate Committee on Finance, January 30, 2017.

[cx] Bloomberg, "American Electric Cancels Plans for Largest U.S. Wind Farm," July 27, 2018, https://www.bloomberg.com/news/articles/2018-07-27/american-electric-cancels-plans-for-largest-u-s-wind-farm

[cxi] 153 FERC ¶ 61,221 (2015)

[cxii] 155 FERC ¶ 61,276 (2016)



AMERICAN OVERSIGHT

EXT-18-2615-G-000459

[cxiii] 162 FERC ¶ 61,128 (2018)(emphasis added)

[cxiv] EIA, *Electricity Monthly Update*, "Electric Power Sector Coal Stocks: March 2018," release date May 28, 2018.

[cxv] U.S. Department of Energy, Staff Report to the Secretary on Electricity Markets and Reliability (August 2017). Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Docket No. AD18-7-000, FERC, January 8, 2018.

[cxvi] FERC, Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures, Docket No. AD18-7-000, January 8, 2018.

[cxvii] FERC website

[cxviii] FERC, Order Rejecting Proposed Tariff Revisions, Granting In Part And Denying In Part Complaint, and Instituting Proceeding Under Section 206 of the Federal Power Act, Docket Nos. EL16-49-000 (Issued June 29, 2018).

[cxix] Federal Energy Regulatory Commission, Order Rejecting Proposed Tariff Revisions, Granting in Part and Denying in Part Complaint, and Instituting Proceeding under Section 206 of the Federal Power Act, Docket No. EL16-49-000, Issued June 29, 2018.

[cxx] ISO-NE, Operational Fuel-Security Analysis, January 17, 2018.

[cxxi] PJM, *Valuing Fuel Security*, April 30, 2018.

[cxxii] Quanta Technology, LLC, Ensuring Reliability and Resilience – A Case Study for the PJM Power Grid, April 23, 2018.

[cxxiii] Quanta study

[cxxiv] Connell, D. Opportunities for New Technology in Coal Mining and Beneficiation; In Proceedings of the National Coal Council Annual Spring Meeting 2018, Washington, DC, April 2018. Available: http://www.nationalcoalcouncil.org/page-Meeting-Presentations.html

[cxxv] U.S. Department of Labor, Mine Safety and Health Administration; Coal Fatalities for 1900 Through 2017; Available: https://arlweb.msha.gov/stats/centurystats/coalstats.asp

[cxxvi] ALFRED (Archival Economic Data, St. Louis Fed.); Total Coal Production for United States; Available: https://alfred.stlouisfed.org/series?seid=A01210USA448NNBR&utm_source=series_page&utm_medium=related_content&utm_term=related_resources&utm_campaign=Alfred.

[cxxvii] U.S. Energy Information Administration; Coal Data; Available: https://www.eia.gov/coal/data.php#production

[cxxviii] Connell, D. Opportunities for New Technology in Coal Mining and Beneficiation; In Proceedings of the National Coal Council Annual Spring Meeting 2018, Washington, DC, April 2018. Available: http://www.nationalcoalcouncil.org/page-Meeting-Presentations.html.

[cxxix] U.S. Energy Information Administration; Drilling Productivity Report; Available: https://www.eia.gov/petroleum/drilling/

[cxxx] National Research Council; Coal Research and Development to Support National Energy Policy; The National Academies Press: Washington, DC, 2007

[cxxxi] U.S. Department of Energy FY 2019 Congressional Budget Request, Volume 3 Part 1, DOE/CF-0140, March 2018

[cxxxii] Fiscor, S. Improved Safety and Productivity Through Advanced Shearer Automation; Coal Age 2017, 122(6), 16-23

[cxxxiii] Connell, D. Opportunities for New Technology in Coal Mining and Beneficiation; In Proceedings of the National Coal Council Annual Spring Meeting 2018, Washington, DC, April 2018. Available: http://www.nationalcoalcouncil.org/page-Meeting-Presentations.html

[cxxxiv] Nebot, E.M. Surface Mining: Main Research Issues for Autonomous Operations; In: Thrun S., Brooks R., Durrant-Whyte H. (eds) Robotics Research. Springer Tracts in Advanced Robotics, vol 28. Springer: Berlin, Heidelberg, 2007.

[cxxxv] EY; Productivity in Mining: Now Comes the Hard Part – A Global Survey (2017); Available: https://www.ey.com/gl/en/industries/mining---metals/ey-productivity-in-mining-now-comes-the-hard-part.

[cxxxvi] Morton, J. New Wireless Tech for Underground Mines Could Save Lives, Costs; Coal Age 2018, 123(3), 20-23.



AMERICAN OVERSIGHT

[cxxxvii] EY; Productivity In Mining: Now Comes the Hard Part – A Global Survey (2017); Available: https://www.ey.com/gl/en/industries/mining---metals/ey-productivity-in-mining-now-comes-the-hard-part.

[cxxxviii] Improving Competitiveness of U.S. Coal Dialogue: Summary Report; Prepared for U.S. Department of Energy, Office of Fossil Energy, Office of Advanced Fossil Technology Systems by Energetics Incorporated; Contract LTI-DE-FE0022594, February 2018. Available: https://www.osti.gov/servlets/purl/1422998

[cxxxix] Improving Competitiveness of U.S. Coal Dialogue: Summary Report; Prepared for U.S. Department of Energy, Office of Fossil Energy, Office of Advanced Fossil Technology Systems by Energetics Incorporated; Contract LTI-DE-FE0022594, February 2018. Available: https://www.ostl.gov/servlets/purl/1422998.

[cxl] Final Technical Report to the DOE project # DE-FC26-04NT41763

[cxli] A. Bland, et al, "Pilot Testing of WRI's Novel Mercury Control Technology by Pre-combustion Thermal Treatment of Coal," Topical Report WR-08-R026 for DOE project DE-FC26-98FT40323

[cxlii] Ibid

[cxliii] Improving Power Plant Efficiency and Power Generation, August 8, 2013 http://www.mcilvainecompany.com/Universal_Power/Subscriber/PowerDescriptionLinks/Charles%20Bullinger%20-%20Great%20River%20Energy%20-%208-8-13.pdf

[cxliv] https://www.prnewswire.com/news-releases/cnx-coal-resources-and-omnis-to-develop-first-solid-energy-refinery-to-produce-clean-coal-300514302.html

[cxlv] https://www.reuters.com/article/vitol-peabody-oil-coal/vitol-invests-in-coal-to-oil-venture-as-un-shipping-fuel-rules-loom-idUSL8N1UD3AY

[cxlvi] https://mineralsrefining.com/

[cxlvii] Improving Competitiveness of U.S. Coal Dialogue: Summary Report; Prepared for U.S. Department of Energy, Office of Fossil Energy, Office of Advanced Fossil Technology Systems by Energetics Incorporated; Contract LTI-DE-FE0022594, February 2018. Available: https://www.ostl.gov/servlets/purl/1422998

[cxlviii] Eisenhauer/Scheer, "Opportunities to Improve the Efficiency of Existing Coal-fired Power Plants", National Energy Technology Laboratory Workshop Report, July 2009.

[cxlix] National Energy Technology Laboratory, Case Study on Steam Cycle Upgrade, NETL unpublished analysis discussed at NETL-Pittsburgh meeting with NCC representatives, July 18, 2018.

[cl] Impact of Cycling on the Operation and Maintenance Cost of Conventional and Combined-Cycle Power Plants, 3002000817, EPRI Final Report, September 2013.

[cli] Non-Battery Bulk Energy Storage: Options for Thermal Energy Storage Integration with Fossil Power Plants, 3002011217, EPRI Report, December 2017.

[clii] Non-Battery Bulk Energy Storage: Options for Thermal Energy Storage Integration with Fossil Power Plants. EPRI, Palo Alto, CA: 2017. 3002011217.

[cliii] EPA, page 9-12, https://www.epa.gov/sites/production/files/2015-10/documents/steam-electric-tdd_10-21-15.pdf

[cliv] https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201404&RIN=2040-AF14

[clv] https://www.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-2015-final-rule

[clvi] https://www.energy.gov/fe/articles/doe-invest-86-million-innovative-technologies-enhance-fossil-energy-power-system

[clvii] Taggart, R. K.; Hower, J. C.; Dwyer, G. S.; Hsu-Kim, H. Trends in the Rare Earth Element Content of U.S.-Based Coal Combustion Fly Ashes. Environ. Sci. Technol. 2016, 50, 5919-5926

[clviii] https://www.netl.doe.gov/research/coal/rare-earth-elements

[clix] Atkins, R. Coal to Products, 2018, Presentation at National Coal Council Spring Meeting, http://www.nationalcoalcouncil.org/NCC-Events/2018/Atkins-NCC-Spring-2018.pdf

[clx] CURC-EPRI Advanced Fossil Energy Technology Roadmap, July 2018, http://www.curc.net/curc-epri-advanced-technology-roadmap-1

[clxi] PJM, "Valuing Fuel Security," April 30, 2018.



AMERICAN OVERSIGHT

[clxii] Gerry Cauley (president and CEO, North American Electric Reliability Corporation), letter to Energy Secretary Rick Perry, May 9, 2017.

[clxiii] The Contribution of the Coal Fleet to America's Electricity Grid, PA Consulting Group for ACCCE, August 2017. Reference cited is National Academy of Sciences, Engineering, and Medicine report on Enhancing the Resilience of the Nation's Electricity System.

[clxiv] NIAC, "Critical Infrastructure Resilience Final Report and Recommendations," September 9, 2009.

[clxv] PJM Interconnection, PJM's Evolving Resource Mix and System Reliability, March 30, 2017.

[clxvi] Institute for Energy Research, "The Levelized Cost of Electricity from Existing Generation Resources," July 2016.

[clxvii] Discussion Roger H. Bezdek and Robert M. Wendling, "Not-So-Green Superhighway: Unforeseen Consequences of Dedicated Renewable Energy Transmission," *Public Utilities Fortnightly*, February 2012, pp. 34 - 42.

[clxviii] James Schlesinger and Robert Hirsch, "Getting Real on Wind and Solar," *Washington Post*, April 24, 2009.

[clxix] See the discussion in Roger H. Bezdek and Robert M. Wendling, "Not-So-Green Superhighway: Unforeseen Consequences of Dedicated Renewable Energy Transmission," op. cit.

[clxx] The New York Independent System Operator, "Power Trends: New York's Evolving Electric Grid, 2017," 2017.

[clxxi] U.S. Energy Information Administration, "Capacity Factors for Utility Scale Generators Not Primarily Using Fossil Fuels, January 2013-September 2017," *Electric Power Monthly*, December 1, 2017.

[clxxii] Robert Bryce, "Texas Wind Power: The Numbers Versus the Hype," *Energy Tribune*, August 5, 2009.

[clxxiii] Keith Poli, "ERCOT Seasonal Assessment Report for Summer 2016," Constellation Energy Resources, LLC, March 2016.

[clxxiv] ERCOT was eventually pressured by groups like the Sierra Club pressured use selected past history to make wind appear more reliable -- even if that meant an optimistic assumption that could result in capacity shortfalls under certain circumstances.

[clxxv] Susan Combs, "Texas Power Challenge: Getting the Most for Your Dollars," Texas Comptroller of Public Accounts, September 2014.

[clxxvi] Mike Nasi, "The Cautionary Tale of the Once-idealized Texas Power Market," presented at the American Coal Council 2018 Spring Coal Forum, Clearwater, Florida, March 2018.

[clxxvii] http://www.transmission.bpa.gov/business/operations/wind/WindGen_VeryLow_Jan08Jan09x.xls

[clxxviii] *See* "In a First, Wind Exceeds Hydro in BPA Region," Platt's *Megawatt Daily*, October 19, 2012, p. 9.

[clxxix] James Conca, "America's Heat Wave No Sweat For Nuclear Power," *Forbes*, July 28, 2016.

[clxxx] Jonathan A. Lesser, "Wind Intermittency and the Production Tax Credit: A High Cost Subsidy for Low Value Power," Continental Economics, October 2012.

[clxxxi] J. Lesser, "Wind Power In the Windy City: Not There When Needed" *Energy Tribune*, July 25, 2012, and J. Lesser, "Wind Generation Patterns and the Economics of Wind Subsidies," *The Electricity Journal*, Volume 26, No. 1 (January-February 2013), pp. 8-16.

[clxxxii] Ibid.

[clxxxiii] Roger H. Bezdek, "Sur-Rebuttal Testimony Before the Office of Administrative Hearings For The Minnesota Public Utilities Commission, State Of Minnesota In the Matter of the Further Investigation In to Environmental and Socioeconomic Costs Under Minnesota Statute 216B.2422, Subdivision 3," OAH Docket No. 80-2500-31888, MPUC Docket No. E-999-CI-14-643, September 10, 2015.

[clxxxiv] http://dailyenergyreport.com/wp-content/uploads/2011/06/NY_CF2008-2010_final.jpg. The data for the estimates were obtained from the *2011 New York ISO Gold Book*.

[clxxxv] Nina Pierpont, Wind Turbine Syndrome: A Report on a National Experiment, May 2013.

[clxxxvi] Ibid.

[clxxxvii] UCAP is a measure of the amount of capacity that capacity resources may offer in the capacity market, and on a seasonal basis, represents the capability of the resource adjusted by the potential unavailability of the unit



AMERICAN OVERSIGHT

based on historical performance data. See Paul Hibbard, Todd Schatzki, and Sarah Bolthrunis, "Capacity Resource Performance In NYISO Markets an Assessment of Wholesale Market Options," Analysis Group Inc., October 2017.

[clxxxviii] New York State Reliability Council, LLC, Installed Capacity Subcommittee, New York Control Area Installed Capacity Requirement For the Period May 2016 To April 2017: Appendices, December 2015; NYISO 2011 Installed Capacity Manual.

[clxxxix] For example, due to Britain's increasing reliance on wind turbines to generate electricity, Steve Holliday, Chief Executive of the British National Grid, stated that, by 2020, the British people will have to change their behavior to use electricity "when it is available" rather than when it is needed; "Era of Constant Electricity at Home is Ending, Says Power Chief," the *Daily Telegraph*, March 2, 2011.

[cxc] Paul Miskelly, "Wind Farms in Eastern Australia -- Recent Lessons," *Energy & Environment*, Vol. 23, No, 8 (December 2012) pp. 1233-1260.

[cxci] Iain Staffell and Richard Green "How Does Wind Farm Performance Decline with Age?" *Renewable Energy*, Volume 66 (June 2014), Pages 775-786.

[cxcii] Ibid.

[cxciii] Gordon Hughes, *The Performance of Wind Farms in the United Kingdom and Denmark*, prepared for the Renewable Energy Foundation, London, 2012. The load factor is determined by measuring the actual amount of electricity output over a time period against the total output expected had the turbine operated for 100 percent of the time period. The ratio is expressed as a percentage.

[cxciv] https://emp.lbl.gov/sites/all/files/lbnl-1005057.pdf.

[cxcv] New York Independent System Operator, "*Power Trends 2017*," op. cit.

[cxcvi] Ibid.

[cxcvii] "California Independent System Operator, "Renewables Reporting," www.caiso.com; Jeff St. John, "The California Duck Curve Is Real, and Bigger Than Expected," *Greentech Media*, November 3, 2016; Paul Denholm, Matthew O'Connell, Gregory Brinkman, and Jennie Jorgenson, "Overgeneration from Solar Energy in California: A Field Guide to the Duck Chart" NREL/TP-6A20-65023," National Renewable Energy Laboratory, November 2015.

[cxcviii] See, for example, Jeremy Deaton, "New York Is Betting on Renewables to Replace a Major Nuclear Power Plant, "T*hink Progress*, January 11, 2017.

[cxcix] "EIA Electricity Generator Data Show Power Industry Response to EPA Mercury Limits" July 7, 2016 , EIA Today In Energy: https://www.eia.gov/todayinenergy/detail.php?id=26972



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Hiranthie Stanford <hstanford@ncc1.org>
**Sent:** Wednesday, October 24, 2018 7:52 AM
**To:** Matheney, Doug
**Subject:** [EXTERNAL] Nationl Coal Council 2019 Spring Meeting Save the Date

# NATIONAL COAL COUNCIL

## SAVE THE DATE

### 2019 ANNUAL SPRING MEETING

April 11-12, 2019 – Washington, DC

**Please join us April 11-12 for our 35th anniversary celebration. The Spring meeting will be held at the Washington Wardman Park Marriott Hotel.**

## REGISTRATION & PROGRAM DETAILS FOR THE SPRING MEETING WILL BE EMAILED TO ALL IN DECEMBER

## PROGRAM AT A GLANCE

Thursday, April 11th, 2019

NCC Committee Meetings



AMERICAN OVERSIGHT

NCC Committee Meetings TBA

**NCC Hospitality**

6:00-9:00 pm NCC Inc. Reception/Dinner

**Friday, April 12th, 2019**

**NCC Full Council Meeting**

8:30 am – 12:30 pm Full Council Meeting

12:30 pm -1:30 pm Networking Lunch

(NCC Fall 2019 Meeting will be hosted September 11-12, in Washington, DC at the Marriott Wardman Park Hotel)

** The final version of the NCC Power Reset and Coal Export reports are currently on line. Please use the following link to review reports: http://nationalcoalcouncil.org/page-NCC-Studies.html.**



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | Sarkus, Thomas A. <Thomas.Sarkus@NETL.DOE.GOV> |
| **Sent:** | Friday, November 09, 2018 10:49 AM |
| **To:** | Giove, Joseph;Janet Gellici - National Coal Council;Kokkinos, Angelos;Daniels, Jarad;Mollot, Darren;Matheney, Doug;Sneed, Michelle;Bossie, Darren;Loman, Carol (CONTR);Hrkman, Lou |
| **Cc:** | Knaggs, Michael (NETL);Gerdes, Kirk (NETL) |
| **Subject:** | Latest NCC Tracking System |
| **Attachments:** | 2018 - 11 - 09 NCC Tracking System.docx |

Latest NCC Tracking System is attached.
Tom

Thomas A. Sarkus
Industrial Partnerships Manager
National Energy Technology Laboratory
U.S. Department of Energy
Mail Stop 920-125
P.O. Box 10940
Pittsburgh, PA 15236-0940

Phone: 412-386-5981
Mobile: (b) (6)
Email: thomas.sarkus@netl.doe.gov



AMERICAN OVERSIGHT

# NCC Tracking List of Important Issues
## 11/9/18

### Membership Packages

- 16 New Members – On 11/7, Gellici sent a set of bios to Sarkus. This package included two SGEs, and two registered lobbyists. Three of the candidates had previously served on the NCC, but were ineligible because they had changed jobs. The candidates will be appointed through July 18, 2020.
  - **Status #1: On 11/8, Sarkus sent the package to Matheney/Sneed/Bossie for review.**
  - **Status #2: On 11/8, Sarkus sent the package to LTI and HQ Administrative staff to begin the process of creating an approval package.**

### Status of NCC Reports

- **National Petroleum Council's CCUS/CO2-EOR Report** – In September 2017, Secretary Perry requested a report from NPC on CCUS/CO2-EOR asking NPC to work with NCC as a resource in preparation of this report. This CCUS study is owned by NPC.
  - **Status #1: From Sept 2017 through September 2018, NCC has reached out to NPC on several occasions without much traction.**
  - **Status #2: As discussed at the face-to-face meeting on 9/24, Jarad/Steve to follow-up with NPC to see what other actions may be requested of NCC.**
- **New Markets for Coal** – Official request from Secretary Perry was signed on 8/31/18 and requested NCC to complete the study by April 12, 2019.
  - **Status: Kick-Off meeting was held on October 16th.**

### Miscellaneous

- (b) (5)
  - **Status: Progress on this issue should be addressed by engaging Wayne Gordon in GC to determine what actions (if any) he would propose.**
- **How NCC Gets its Funding** – The NCC is currently funded through donations from its members. Discussions have been held on-and-off for years to discuss if that is the best model. Some FACAs are largely/completely funded by the Government. The discussion is being had afresh to see if action(s) should be taken.
  - **Status:** (b) (5)

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** jgellici@ncc1.org
**Sent:** Friday, November 09, 2018 11:00 AM
**To:** Sarkus, Thomas (NETL);Giove, Joseph;Kokkinos, Angelos;Daniels, Jarad;Mollot, Darren;Matheney, Doug;Sneed, Michelle;Bossie, Darren;Loman, Carol (CONTR);Hrkman, Lou
**Cc:** Knaggs, Michael (NETL);Gerdes, Kirk (NETL)
**Subject:** [EXTERNAL] RE: Latest NCC Tracking System

Thanks, Tom. Appreciate your continuing the use of this great management tool. For future versions, I would like to add the following:

DOE Briefing on NCC Coal Exports Report
DOE Briefing on NCC Power Reset Report
Meeting with DOE staff on prospective future report topics with aim of new report request being announced on April 12th, 2019 (NCC 2019 Spring Meeting)

Enjoy the weekend!

Cheers ~
Janet Gellici
CEO
National Coal Council
1101 Pennsylvania Ave. NW, #300, WDC 20004
Office (202) 756-4524 ~ Direct (b) (6)
jgellici@NCC1.org
www.nationalcoalcouncil.org

**From:** Sarkus, Thomas A. [mailto:Thomas.Sarkus@NETL.DOE.GOV]
**Sent:** Friday, November 9, 2018 1:49 PM
**To:** Giove, Joseph <joseph.giove@hq.doe.gov>; Janet Gellici - National Coal Council <jgellici@ncc1.org>; Kokkinos, Angelos <angelos.kokkinos@hq.doe.gov>; Daniels, Jarad <jarad.daniels@hq.doe.gov>; Mollot, Darren <darren.mollot@hq.doe.gov>; Matheney, Doug Nmn <doug.matheney@hq.doe.gov>; Sneed, Michelle <Michelle.Sneed@hq.doe.gov>; Bossie, Darren <Darren.Bossie@hq.doe.gov>; Loman, Carol <carol.loman@hq.doe.gov>; Hrkman, Lou <Lou.Hrkman@hq.doe.gov>
**Cc:** Knaggs, Michael <Michael.Knaggs@NETL.DOE.GOV>; Gerdes, Kirk R. <Kirk.Gerdes@NETL.DOE.GOV>
**Subject:** Latest NCC Tracking System

Latest NCC Tracking System is attached.
Tom

Thomas A. Sarkus
Industrial Partnerships Manager
National Energy Technology Laboratory



AMERICAN OVERSIGHT

U.S. Department of Energy
Mail Stop 920-125
P.O. Box 10940
Pittsburgh, PA 15236-0940

Phone: 412-386-5981
Mobile: (b) (6)
Email: thomas.sarkus@netl.doe.gov

---



Virus-free. www.avg.com

**********
This message does not originate from a known Department of Energy email system.
Use caution if this message contains attachments, links or requests for information.
**********



AMERICAN OVERSIGHT

**Department of Energy**
Washington, DC 20585

APR 19 2019

Mohammad Aslami
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

Via email to: maslami@ucsusa.org

Re: HQ-2018-01472-F

Dear Mr. Aslami:

This is a partial response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> All emails, email attachments, or calendar invitations/entries sent or received by Travis Fisher that contain any of the following terms:
> a. "PPD-21"
> b. "Critical electric infrastructure"
> c. "Electric reliability organization"
> d. "RTO"
> e. "Sector specific agency"
> f. "Fuel secure"
> g. "Critical infrastructure"
> h. "Defense electric infrastructure"
> i. "202(c)"
> j. "Federal Power Act"
> k. "FPA"
> l. "Resilience"
> m. "Defense Production Act"
> n. "DPA"
> o. "Strategic electric generation reserve"
> p. "eop.gov"
> q. "S1"
>
> Provide records from March 1, 2017 to April 15, 2018.
>
> All emails, email attachments, or calendar invitations/entries sent or received by Bernard McNamee that contain any of the following terms:
> a. "PPD-21"
> b. "Critical electric infrastructure"
> c. "Electric reliability organization"
> d. "RTO"

AMERICAN OVERSIGHT

e. "Sector specific agency"
f. "Fuel secure"
g. "Critical infrastructure"
h. "Defense electric infrastructure"
i. "202(c)"
j. "Federal Power Act"
k. "FPA"
l. "Resilience"
m. "Defense Production Act"
n. "DPA"
o. "Strategic electric generation reserve"
p. "eop.gov"
q. "S1"

Provide records from January 1, 2018 to the present.

In a Joint Status Report filed on February 4, 2019, Plaintiff agreed to "waive the production of publicly available news articles, subscription-based articles, and news clippings/briefings, provided that such documents have not been forwarded with additional comment by or to DOE or FERC custodians." Plaintiff also agreed to "waive the production of attachments to responsive documents except for those attachments specifically requested by Plaintiff."

In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to exclude "Federal Power Act," "FPA," "Electric reliability organization," and "RTO" as keywords for this request." In the same email, Mr. Wood stated, "UCS agrees to exclude "eop.gov" as a keyword but still requests emails sent to or from email addresses ending in "eop.gov."

Your request was assigned to DOE's Office of Electricity Delivery and Energy Reliability (OE), Office of the General Counsel (GC), and Office of Policy to conduct a search of their files for responsive documents. DOE started its search on August 21, 2018, which is the cut-off date for responsive documents. This letter serves as a partial response for DOE. DOE is continuing to process your request for additional responsive documents, which will be provided to you in a subsequent final response.

At this time, DOE has located fifteen (15) documents responsive to your request. These documents are being provided to you as described in the accompanying index.

Upon review, DOE has determined that certain information should be withheld pursuant to Exemptions 5 and 6 of the FOIA, 5 U.S.C. § 552(b)(5) and (b)(6).

Exemption 5 protects "inter-agency or intra-agency memorandums or letters that would not be available by law to a party other than an agency in litigation with the agency." 5 U.S.C. § 552(b)(5). This exemption has been construed to exempt those documents normally privileged in the civil discovery context, such as attorney-client communications, attorney-work product documents, and deliberative process material.



AMERICAN OVERSIGHT

The information withheld under Exemption 5 has been deemed pre-decisional and deliberative in nature, including pre-decisional discussions between DOE staff. The DOE may consider these preliminary views as part of the process that will lead to the agency's final decision about these matters. The information does not represent a final agency position, and its release would compromise the deliberative process by which the government makes its decisions. Withholding this information protects against the premature disclosure of proposed policies regarding personnel matters, protects the candor of intra-agency communications, and prevents confusion to the public that could result from disclosing alternative rationales for agency decisions.

In addition, these documents contain communications involving DOE attorneys and are being withheld under the attorney-client privilege. The information in these documents includes confidential communications between DOE attorneys and staff of the program office to which they provide legal advice. Thus, documents are being withheld in part under Exemption 5 of the FOIA.

With respect to the discretionary disclosure of deliberative information, the quality of agency decisions would be adversely affected if frank, written discussion of policy matters were inhibited by the knowledge that the content of such discussion might be made public. For this reason, DOE has determined that discretionary disclosure of the deliberative material is not in the public interest because foreseeable harm could result from such disclosure.

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of cell phone numbers. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that when a FOIA request is denied, agencies will be defended and justified in not releasing the material on a discretionary basis "if (1) the agency reasonably foresees that disclosure will harm an interest protected by one of the statutory exemptions, or (2) disclosure is prohibited by law." The Attorney General's memorandum also provides that whenever full disclosure of a record is not possible, agencies "must consider whether they can make a partial disclosure." Thus, we



AMERICAN OVERSIGHT

have determined that, in certain instances, a partial disclosure is proper. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, redacted versions of the documents are being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 20, 2018, letter, you were advised that your request was placed in the "news media" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

DOE is continuing to process your request. If you have questions about the processing of the request or this letter, please contact Ms. Auborn Finney in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at (202) 586-5955.



AMERICAN OVERSIGHT

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01472-F**

**First partial response to request from Mr. Mohammad Aslami for:**

**All emails, email attachments, or calendar invitations/entries sent or received by Travis Fisher that contain any of the following terms:**
**a. "PPD-21"**
**b. "Critical electric infrastructure"**
**c. "Electric reliability organization"**
**d. "RTO"**
**e. "Sector specific agency"**
**f. "Fuel secure"**
**g. "Critical infrastructure"**
**h. "Defense electric infrastructure"**
**i. "202(c)"**
**j. "Federal Power Act"**
**k. "FPA"**
**l. "Resilience"**
**m. "Defense Production Act"**
**n. "DPA"**
**o. "Strategic electric generation reserve"**
**p. "eop.gov"**
**q. "S1"**

**Provide records from March 1, 2017 to April 15, 2018.**

**All emails, email attachments, or calendar invitations/entries sent or received by Bernard McNamee that contain any of the following terms:**
**a. "PPD-21"**
**b. "Critical electric infrastructure"**
**c. "Electric reliability organization"**
**d. "RTO"**
**e. "Sector specific agency"**
**f. "Fuel secure"**
**g. "Critical infrastructure"**
**h. "Defense electric infrastructure"**
**i. "202(c)"**
**j. "Federal Power Act"**
**k. "FPA"**
**l. "Resilience"**
**m. "Defense Production Act"**
**n. "DPA"**
**o. "Strategic electric generation reserve"**
**p. "eop.gov"**

AMERICAN OVERSIGHT

**q. "S1"**

**Provide records from January 1, 2018 to the present.**

**In a Joint Status Report filed on February 4, 2019, Plaintiff agreed to "waive the production of publicly available news articles, subscription-based articles, and news clippings/briefings, provided that such documents have not been forwarded with additional comment by or to DOE or FERC custodians." Plaintiff also agreed to "waive the production of attachments to responsive documents except for those attachments specifically requested by Plaintiff."**

**In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to exclude "Federal Power Act," "FPA," "Electric reliability organization," and "RTO" as keywords for this request." In the same email, Mr. Wood stated, "UCS agrees to exclude "eop.gov" as a keyword but still requests emails sent to or from email addresses ending in "eop.gov."**

DOE conducted a search of its files, and at this time, has identified fifteen (15) documents responsive to your request.

- Ten (10) documents *are being released in their entirety.*
- One (1) document is *being withheld in part pursuant to Exemption (b)(6).* Exemption 6 information consists of a cell phone number.
- Three (3) documents are *being withheld in part pursuant to Exemption (b)(5).* Exemption 5 information consists of deliberative process privilege information and internal discussions between DOE employees and contains confidential attorney-client communications and legal advice provided by DOE attorneys.
- One (1) document is *being withheld in part pursuant to Exemptions (b)(5) and (b)(6).* Exemption 5 information consists of deliberative process privilege information and internal discussions between DOE employees. Exemption 6 information consists of a cell phone number.



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

| | |
|---|---|
| **Subject:** | HEC Hearing - Q&A |
| **Location:** | Leslie Groves Conference Room (S1 Conference Room) |
| **Start:** | Fri 1/5/2018 1:00 PM |
| **End:** | Fri 1/5/2018 2:30 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCurdy, Jake |
| **Required Attendees:** | Singer, Emily; Turner, Alexa; Varnasidis, Sophia; Budd, Hunter; Menezes, Mark; Ellis, Kristen; Dabbar, Paul; Dannenfelser, Marty; Jewell, Matthew; Garrish, Theodore; McNamee, Bernard; Fibbe, George; Cunningham, Sean; Harris-Cameron, Maya; Klotz, Frank; DL-NA1-AAG; Solan, David; Wilmot, Dan; Colgary, James; Brouillette, Dan |
| **Optional Attendees:** | DL-NA-Congressional Affairs; White, William; Khalil, Nora F.; Tomboulian, Cynthia; NNSA Administrator; Baca, Richard (CONTR); Miller, Jason; Boser, Brittany; Travis, Owen |



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

**From:** Cunningham, Sean
**Sent:** Tuesday, January 02, 2018 8:09 AM
**To:** McNamee, Bernard
**Subject:** NOI draft
**Attachments:** 202c NOI v9.docx

Pre-decisional. I will call you.



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

**From:** McNamee, Bernard
**Sent:** Tuesday, January 02, 2018 4:24 PM
**To:** Konieczny, Katherine
**Subject:** Here are my edits
**Attachments:** 202c NOI v9 BLM.docx

Kathy--Here are my edits (so far). Thanks. Bernie

Bernard L. McNamee II
Deputy General Counsel for Energy Policy
U.S. Department of Energy
(w) 202-586-6732
(c) (b) (6)



AMERICAN OVERSIGHT

**Ostrowski, Stephanie (CONTR)**

**From:** Drake, Christopher
**Sent:** Tuesday, January 02, 2018 4:57 PM
**To:** McNamee, Bernard
**Subject:** RE: typo on p4

Done

-----Original Message-----
From: McNamee, Bernard
Sent: Tuesday, January 02, 2018 4:56 PM
To: Drake, Christopher <Christopher.Drake@hq.doe.gov>
Subject: FW: typo on p4

Chris--I think we already caught this, but if not, please fix. Thanks. Bernie

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, January 02, 2018 4:53 PM
To: McNamee, Bernard <Bernard.McNamee@hq.doe.gov>
Subject: typo on p4

Bernie, Could you please forward this to the person who has the pen?(b) (5) Thanks b5

(b) (5) b5



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

**From:** Cunningham, Sean
**Sent:** Tuesday, January 02, 2018 5:03 PM
**To:** McNamee, Bernard
**Subject:** RE: typo on p4

Thanks.

-----Original Message-----
From: McNamee, Bernard
Sent: Tuesday, January 02, 2018 4:56 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Subject: RE: typo on p4

I already caught it. Thanks. Bernie

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, January 02, 2018 4:53 PM
To: McNamee, Bernard <Bernard.McNamee@hq.doe.gov>
Subject: typo on p4

Bernie, Could you please forward this to the person who has the pen? (b) (5) Thanks b5

(b) (5) b5



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

| | |
|---|---|
| **Subject:** | HEC Hearing - Q&A |
| **Location:** | Leslie Groves Conference Room (S1 Conference Room) |
| **Start:** | Fri 1/5/2018 10:00 AM |
| **End:** | Fri 1/5/2018 11:30 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCurdy, Jake |
| **Required Attendees:** | Singer, Emily; Turner, Alexa; Varnasidis, Sophia; Budd, Hunter; Menezes, Mark; Ellis, Kristen; Dabbar, Paul; Dannenfelser, Marty; Jewell, Matthew; Garrish, Theodore; McNamee, Bernard; Fibbe, George; Cunningham, Sean; Harris-Cameron, Maya; Klotz, Frank; DL-NA1-AAG; Solan, David |
| **Optional Attendees:** | DL-NA-Congressional Affairs; White, William; Khalil, Nora F.; Tomboulian, Cynthia; NNSA Administrator |



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

| | |
|---|---|
| **Subject:** | Regulatory Communications |
| **Location:** | S1/Leslie Groves Conference Room |
| **Start:** | Thu 1/4/2018 11:00 AM |
| **End:** | Thu 1/4/2018 11:45 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Menezes, Mark; Cunningham, Sean; McNamee, Bernard; Haus, Bob; Turenne, William; Hynes, Shaylyn; Garrish, Theodore; Dannenfelser, Marty; Loraine, Jennifer A.; Winberg, Steven; Maddox, Mark; Walker, Bruce; Fisher, Travis; Dan Wilmot (Dan.Wilmot@hq.doe.gov); Colgary, James; Habansky, Sarah; Atkins, Elise |

This meeting is to update/prepare for a forthcoming announcement. **This is invite-only.**



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

| | |
|---|---|
| **Subject:** | HEC Hearing - Q&A |
| **Location:** | Leslie Groves Conference Room (S1 Conference Room) |
| **Start:** | Fri 1/5/2018 1:00 PM |
| **End:** | Fri 1/5/2018 2:30 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCurdy, Jake |
| **Required Attendees:** | Singer, Emily; Turner, Alexa; Varnasidis, Sophia; Budd, Hunter; Menezes, Mark; Ellis, Kristen; Dabbar, Paul; Dannenfelser, Marty; Jewell, Matthew; Garrish, Theodore; McNamee, Bernard; Fibbe, George; Cunningham, Sean; Harris-Cameron, Maya; Klotz, Frank; DL-NA1-AAG; Solan, David |
| **Optional Attendees:** | DL-NA-Congressional Affairs; White, William; Khalil, Nora F.; Tomboulian, Cynthia; NNSA Administrator; Baca, Richard (CONTR); Miller, Jason; Boser, Brittany; Travis, Owen |



AMERICAN OVERSIGHT

**Ostrowski, Stephanie (CONTR)**

**From:** McNamee, Bernard
**Sent:** Thursday, January 04, 2018 4:27 PM
**To:** S1 Schedule
**Subject:** Accepted: Senior Staff Meeting



AMERICAN OVERSIGHT

**Ostrowski, Stephanie (CONTR)**

| | |
|---|---|
| **From:** | Colgary, James |
| **Sent:** | Saturday, January 06, 2018 2:19 PM |
| **To:** | Haus, Bob;McNamee, Bernard |
| **Subject:** | FW: DOE Strategic Plan |
| **Attachments:** | Draft DOE 2018 Strategic Plan 9 11 17 OMB Comments Requiring Resolution 12 18 17.docx |

Here you go. Have a great weekend!

Jim Colgary



AMERICAN OVERSIGHT

**Ostrowski, Stephanie (CONTR)**

**From:** McRae, Ben
**Sent:** Monday, January 08, 2018 11:54 AM
**To:** McNamee, Bernard
**Subject:** Weekly
**Attachments:** Weekly 1-8.docx



AMERICAN OVERSIGHT

**Ostrowski, Stephanie (CONTR)**

**From:** Hynes, Shaylyn
**Sent:** Monday, January 08, 2018 3:52 PM
**To:** Brouillette, Dan;Menezes, Mark;Dabbar, Paul
**Cc:** Winberg, Steven;Walker, Bruce;McCormack, Brian;Colgary, James;Wilmot, Dan;Turenne, William;Haus, Bob;Fisher, Travis;McNamee, Bernard;Dannenfelser, Marty;Loraine, Jennifer A.;Garrish, Theodore;Atkins, Elise;Maddox, Mark;Cunningham, Sean
**Subject:** RE: TIME SENSITIVE: FINAL DRAFT FERC STATEMENT

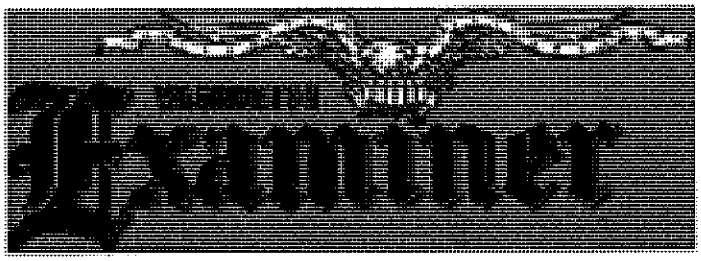
Post here:

https://elibrary.ferc.gov/idmws/file_list.asp?document_id=14633130

---

**From:** Hynes, Shaylyn
**Sent:** Monday, January 08, 2018 3:02 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; Dabbar, Paul <Paul.Dabbar@hq.doe.gov>
**Cc:** Winberg, Steven <Steven.Winberg@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Fisher, Travis <Travis.Fisher@hq.doe.gov>; McNamee, Bernard <Bernard.Mcnamee@hq.doe.gov>; Dannenfelser, Marty <Marty.Dannenfelser@hq.doe.gov>; Loraine, Jennifer A. <Jennifer.Loraine@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Atkins, Elise <Elise.Atkins@hq.doe.gov>; Maddox, Mark <MRMaddox@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** RE: TIME SENSITIVE: FINAL DRAFT FERC STATEMENT

(b) (5)




# FERC expected to meet Rick Perry halfway on coal subsidies

by Josh Siegel | Jan 8, 2018, 2:32 PM Share on Twitter Share on Facebook Email this article Share on LinkedIn Print this article

*Energy Secretary Rick Perry worries that as retiring coal and nuclear plants, which operate around-the-clock, are replaced by natural gas and intermittent wind and solar, the grid may struggle to provide power quickly during an extreme weather event or other emergency. (AP Photo/Jacquelyn Martin)*



AMERICAN OVERSIGHT

Energy experts expect federal regulators this week to reject Energy Secretary Rick Perry's proposal to subsidize struggling coal and nuclear power plants, but then meet him halfway in beginning to change how electricity generators are compensated.

Analysts say the Federal Energy Regulatory Commission, facing a Jan. 10 deadline to rule on the proposal, probably will take action to begin a process of changing how power plants are paid for their ability to provide reliable and resilient power to the electricity grid.

"Clearly, doing nothing is not a solution," said Alison Silverstein, an energy consultant and former FERC staffer who helped write a Department of Energy study last year on the health of the power grid. Doing nothing "is not an appropriate technical or market solution because it would contribute to uncertainty and be a huge and unnecessary diss to DOE."

"Resiliency is an important issue even if the secretary's proposal misframes the solution," Silverstein said in an interview with the *Washington Examiner*. "What FERC needs to do is say, thank you for your proposal, we are not doing that, but we are moving forward with a separate inquiry that studies whether power plants are being paid enough for the right things."

Perry, in the name of resilience, asked FERC in September to rewrite the rules governing wholesale power markets to reward power producers in the Midwest and Northeast that are able to store enough fuel for 90 days of generation on-site. Only coal, nuclear, and some hydropower plants can fulfill that condition.

The energy secretary says that as retiring coal and nuclear plants, which operate around the clock, are replaced by natural gas and intermittent wind and solar, the grid may struggle to provide power quickly during an extreme weather event or other emergency.

Supporters of the argument cite the cold spell slamming the U.S. in recent weeks as justification for their case.

The deep freeze this month made coal the leading provider of electricity for heating in the East because of rising natural gas prices. Coal beat out every other form of power plant fuel in the federally overseen PJM electricity market, which includes 13 states from Illinois to the District of Columbia.

"This winter's extended cold weather is proof that we need updates to our nation's electricity markets to ensure the reliable electricity we are getting from coal will be there when called upon in the future," said Michelle Bloodworth, chief operating officer of American Coalition for Clean Coal Electricity, a trade group representing coal producers.

But the wider energy industry, from oil and natural gas producers to wind and solar, opposes the proposed rule, saying it would upend competitive power markets by propping up failing plants and increasing prices for consumers. Opponents say coal, facing underlying competitive problems, should not be rewarded for its performance during the cold spell.

"Coal is getting a temporary reprieve because natural gas prices are much higher because of the cold weather," said John Hughes, president and CEO of Electricity Consumers Resource Council, which represents large industrial power consumers. "But this is a minor victory because coal's fundamental problems are aging plants and economics."

Perry's unusual request to save coal puts pressure on FERC, an independent agency that regulates the interstate transmission of electricity.



AMERICAN OVERSIGHT

After initially giving the commission 45 days to rule, Perry begrudgingly extended the deadline to Jan. 10 at the request of FERC's new Republican chairman, Kevin McIntyre. FERC, however, does not report to Perry and has the authority to approve, modify, or outright reject his plan.

Energy experts say FERC, with three Republican commissioners and two Democrats, does not have the votes to enact Perry's proposal as requested, but instead will take a middle-ground action.

Christie Tezak, an analyst at ClearView Energy, a research group, says it's unlikely FERC will grant a short-term bailout of coal and nuclear plants, especially when the grid has an over-abundance of power supply.

"FERC when there is something this controversial often tries to find something in the middle and this is likely to be one of those circumstances," Tezak said. "The record is not strong enough to demonstrate companies and utilities are in acute economic distress. To suggest the market is teetering on the brink of disaster when we have electricity reserves in excess of 20 percent is a tough factual conclusion to make."

Tezak and other analysts say Perry's proposal addresses the important challenge of how to properly value and define attributes such as reliability and resilience as the grid's characteristics are changing.

But they say Perry's preferred solution, rewarding power generators that can provide 90 days of fuel supply, would not fix the problem.

The Rhodium Group, a research firm, said in a recent independent study that "of all the major power disruptions nationwide over the past five years, only 0.00007 percent were due to fuel supply problems. The vast majority were the result of severe weather knocking down power lines."

Additionally, critics argue that coal and nuclear do not protect the grid during extreme events.

Perry in substantiating his proposal often cites the January 2014 polar vortex, when the power grid came close to blacking out because power plants could not keep up with energy demand.

While natural gas faced pipeline constraints, some coal-fired power plants were unable to generate electricity because their coal piles froze and their equipment malfunctioned in freezing temperatures.

"Perry's proposal is a disaster for people who pay the bills," said Nora Mead Brownell, a former Republican FERC commissioner in the George W. Bush administration. "But most people agree this is an inflection point for the industry. The proposal raised a conversation about what the grid of the future looks like, what are the challenges that face it, and whether reliability somehow has been compromised by the change in generation mix."

Under the current compensation system, operators of wholesale power markets hold auctions where electricity generators make bids, with the goal of matching supply to demand at the lowest possible price for consumers. Coal and nuclear plants are increasingly uncompetitive in this process because they struggle to keep costs low and still make a profit.

Brownell and other experts say FERC has some options to address Perry's concerns about coal and nuclear's struggles, without delivering on his specific request.

FERC could order the regional transmission organizations, such as PJM, and independent system operators, like Midcontinent Independent System Operator, Inc. in the Midwest, that oversee wholesale power markets to define resilience and reliability and propose metrics that value those attributes.



AMERICAN OVERSIGHT

For example, FERC, working with the operators, could decide which power sources qualify as reliable and resilient and then require power markets to obtain a specific amount of generation from them and to properly compensate them.

"I could see a proposal to identify a set of characteristics that define reliability and resilience, and tell the ISOs and RTOs to use a market-based format like bids or auctions to procure a certain amount of eligible products," Tezak said. "I wouldn't be surprised if FERC cast a wider net in the end, and that not just coal and nuclear qualify."

PJM already has offered its own solution that would allow coal and nuclear plants to set their own prices, charging a bit more for their electricity.

"The bottom line either is though these wholesale markets feel remote to most consumers, they are part of a relatively complex regulatory design that involves not just federal and state governments, but at the end of the day, impacts what you pay as an end-use consumer and whether you have access to reliable electricity," said Tony Clark, a former Republican FERC commissioner. "That's why it's important."



AMERICAN OVERSIGHT

**Ostrowski, Stephanie (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, January 08, 2018 4:47 PM
**To:** Brouillette, Dan;Wilmot, Dan;Colgary, James;Menezes, Mark;Hynes, Shaylyn;Cunningham, Sean;McNamee, Bernard
**Subject:** FW: FERC action on DOE NOPR
**Attachments:** Letter.pdf; FERC Order Jan 8.pdf; Resilience 010818.pdf

Fyi

---

**From:** Kevin McIntyre <Kevin.McIntyre@ferc.gov>
**Date:** Monday, Jan 08, 2018, 4:22 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FERC action on DOE NOPR

Brian –

As discussed, please see attached.



AMERICAN OVERSIGHT

## Ostrowski, Stephanie (CONTR)

**From:** Dannenfelser, Marty
**Sent:** Monday, January 08, 2018 2:51 PM
**To:** Brouillette, Dan;Menezes, Mark;Dabbar, Paul;Klotz, Frank;Colgary, James;Turner, Alexa;Singer, Emily;Varnasidis, Sophia;Budd, Hunter;Ellis, Kristen;Khalil, Nora F.;Harris-Cameron, Maya;Miller, Jason
**Cc:** McCormack, Brian;Wilmot, Dan;Garrish, Theodore;Loraine, Jennifer A.;McCurdy, Jake;Jewell, Matthew;Playforth, Taylor;Haus, Bob;Hynes, Shaylyn;Turenne, William;Liben, Paul;McNamee, Bernard;Fibbe, George;Brown, Michael
**Subject:** Testimony: Deputy Secretary Dan Brouillette (DOE Modernization-1/9/2018)
**Attachments:** 1.9.18 HEC Testimony of Deputy Secretary Dan Brouillette.pdf

The Deputy Secretary's attached written testimony has been finalized with OMB and submitted to the Committee. Thanks for all your help and patience throughout this process.



AMERICAN OVERSIGHT

**Ostrowski, Stephanie (CONTR)**

**From:** Hynes, Shaylyn
**Sent:** Monday, January 08, 2018 3:48 PM
**To:** Brouillette, Dan;Menezes, Mark
**Cc:** Cunningham, Sean;McCormack, Brian;Wilmot, Dan;McNamee, Bernard;Fisher, Travis
**Subject:** FW: Comment on FERC rejection of DOE grid rule?

FYI (b) (5)
(b) (5)

---

**From:** Catherine Traywick (BLOOMBERG/ NEWSROOM:) [mailto:ctraywick@bloomberg.net]
**Sent:** Monday, January 08, 2018 3:43 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Comment on FERC rejection of DOE grid rule?

Hi Shaylyn,

We are preparing to move a story stating that FERC is planning to reject Secretary Perry's grid proposal, and instead an alternative proposal that asks RTOs to evaluate resilience in their own regions. We are citing unnamed persons familiar with the deliberations. I'd love to include a statement from DOE if you have one. Let me know if you have any questions or concerns!

Catherine

---

Catherine Traywick
Reporter, Bloomberg News
Washington, D.C.
Desk: 202.807.2021
Mobile: (b) (6)



AMERICAN OVERSIGHT

**Department of Energy**
Washington, DC 20585

APR 2 6 2019

Sam Gomberg
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

Via email to: sgomberg@ucsusa.org

Re: HQ-2018-01432-F

Dear Mr. Gomberg:

This is a final response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> "All emails, email attachments, or calendar invitations/entries sent or received between 1) political appointees at the Department of Energy and 2) any representative of Murray Energy or with email addresses ending in 'coalsource.com.'"

In an August 8, 2018, phone conversation, confirmed via email, with Celtia Rokebrand, formerly of my office, Mr. Mohammad Aslami, of your office, agreed to combine your request with HQ-2018-01433-F, amending this request to the following:

> All emails, email attachments, or calendar invitations/entries sent or received between political appointees at the Department of Energy and:
>
> a) Any representative of Murray Energy or with the email addresses ending in "coalsource.com" or
> b) Any representative of FirstEnergy or with the email addresses ending in "firstenergycorp.com"
>
> Provide records from January 1, 2018, to the present.

In that same conversation, Mr. Mohammad Aslami, of your office, agreed to exclude any publicly available documents and any auto-generated news bulletins. Mr. Aslami also agreed to limit the search to the following program offices:

- The Office of the Secretary;
- The Office of Fossil Energy;
- The Office of Congressional and Intergovernmental Affairs;
- The Office of the General Counsel;
- The Office of Public Affairs;

AMERICAN OVERSIGHT

- The Office of Electricity Delivery and Energy Reliability;
- The Office of Cybersecurity, Energy Security, and Emergency Response;
- The Office of Energy Efficiency and Renewable Energy; and
- The Office of Nuclear Energy.

Your request was assigned to DOE's Office of the Secretary (ES); the Office of Fossil Energy (FE); the Office of Congressional and Intergovernmental Affairs (CI); the Office of the General Counsel (GC); the Office of Public Affairs (PA); the Office of Electricity (OE); the Office of Cybersecurity, Energy Security, and Emergency Response (CESER), the Office of Energy Efficiency and Renewable Energy (EE), and the Office of Nuclear Energy (NE) to conduct a search of their files for responsive documents. DOE started its search on September 10, 2018, which is the cut-off date for responsive documents. On February 15, 2019, DOE provided a partial response.

DOE has completed its search and has located four (4) additional documents responsive to your request. These documents are being provided to you as described in the accompanying index.

Upon review, DOE has determined that certain information should be withheld pursuant to Exemption 6 of the FOIA, 5 U.S.C. § 552(b)(6).

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of mobile telephone numbers and personal information belonging to an individual. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that the agency is justified in not releasing material that the agency reasonably foresees would harm an interest protected by one of the statutory exemptions. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.



AMERICAN OVERSIGHT

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, a redacted versions of the documents are being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision, as well as the adequacy of the search, may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 14, 2018, letter, you were advised that your request was placed in the "scientific" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

If you have questions about the processing of the request or this letter, please contact Ms. Auborn Finney in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at (202) 586-5955.



AMERICAN OVERSIGHT

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01432-F**

**Final response to request from Mr. Sam Gomberg for:**

> **"All emails, email attachments, or calendar invitations/entries sent or received between 1) political appointees at the Department of Energy and 2) any representative of Murray Energy or with email addresses ending in 'coalsource.com.'"**

**In an August 8, 2018, phone conversation, confirmed via email, with Celtia Rokebrand, formerly of my office, Mr. Mohammad Aslami, of your office, agreed to combine your request with HQ-2018-01433-F, amending the request to the following:**

> **All emails, email attachments, or calendar invitations/entries sent or received between political appointees at the Department of Energy and:**
>
> **c) Any representative of Murray Energy or with the email addresses ending in "coalsource.com" or**
> **d) Any representative of FirstEnergy or with the email addresses ending in "firstenergycorp.com"**
>
> **Provide records from January 1, 2018, to the present.**

**In that same conversation, Mr. Mohammad Aslami, of your office, agreed to exclude any publicly available documents and any auto-generated news bulletins. Mr. Aslami also agreed to limit the search to the following program offices:**

- **The Office of the Secretary;**
- **The Office of Fossil Energy;**
- **The Office of Congressional and Intergovernmental Affairs;**
- **The Office of the General Counsel;**
- **The Office of Public Affairs;**
- **The Office of Electricity Delivery and Energy Reliability;**
- **The Office of Cybersecurity, Energy Security, and Emergency Response;**
- **The Office of Energy Efficiency and Renewable Energy; and**
- **The Office of Nuclear Energy.**

DOE has identified four (4) additional documents responsive to your request.

- Three (3) documents are *being withheld in part pursuant to Exemption (b)(6).* Exemption 6 information consists of mobile telephone numbers and personal information belonging to an individual.

AMERICAN OVERSIGHT

- One (1) document is *being released in its entirety.*



AMERICAN OVERSIGHT

**Rokebrand, Celtia R. (CONTR)**

**From:** Jaworowski, Suzanne
**Sent:** Tuesday, January 23, 2018 7:13 PM
**To:** Greenwood, John H
**Subject:** RE: Streaming Contact and Greenwood's thoughts on MNC

John,

All I can say is you're the best! Really, you go above and beyond every time. I am impressed.

Thank you so much for everything. You're welcome running along side us in all of our activities.

Thank you!!!
Sincerely,

Suzie

---

**From:** Greenwood, John H <jgreenwood@firstenergycorp.com>
**Date:** Tuesday, Jan 23, 2018, 3:45 PM
**To:** Trunzo, Alisa (CONTR) <Alisa.Trunzo@Nuclear.Energy.Gov>, Tay Stevenson <tay@generationatomic.org>, Sam Brewer <sam@generationatomic.org>
**Cc:** Jaworowski, Suzanne <Suzanne.Jaworowski@hq.doe.gov>
**Subject:** Streaming Contact and Greenwood's thoughts on MNC

matt@tamu.edu

That is the streaming guy at Texas A&M. They haven't done a Facebook Live imbed yet, but I think they can figure it out.

John's Captured Thoughts for DOE.

The MNC is the right conversation at the right time. The brand must be set to ensure that the mission is accomplished. In my mind, the MNC should set a bare standard of what an event must consist of to be considered and MNC.

1. Streaming of Conversation of Nuclear : Could be panel, could be different just needs to be something that has some level of production value that goes on Facebook Live
2. Active Feed into #NuclearVisionary Twitter
3. Promotion activities for attendance in person, and for social media consumption
4. Some type of Outreach activity for nuclear education:

Without these components, I don't believe there is a consistency that is needed for a national movement.
Again these are what I think are minimums. Items that I think would be important in addition:

Development of a promotional video (hype video) for the event. Fly by of what is nuclear in the surrounding area.
Strong push by DOE in local media circuits, but local venue provides contacts at least 4 weeks in advance.
Large push for Classroom Wraps, and campus activities that promote the MNC.



AMERICAN OVERSIGHT

It was great chatting again. I see amazing potential in the MNC, and I have benefitted from hosting one.
OSU Nuclear is being revitalized by these efforts. The program had been circling the drain. I am confident the recent conversations on campus will help with student recruitment and it has inspired the faculty.

I will be at University of Michigan this Thursday. I plan to pitch the idea and find a place to fit one.

I am going to push for a December 2 event (or at least the same week). This is the Fermi Criticality Anniversary date. As part of the event we will drink Chianti from paper cups.

Best Regards,

John H. Greenwood
Nuclear Engineer
Davis-Besse Nuclear Power Station
O:(419) 249-2322
C: (b) (6)

---

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**



AMERICAN OVERSIGHT

**Rokebrand, Celtia R. (CONTR)**

**From:** Greenwood, John H <jgreenwood@firstenergycorp.com>
**Sent:** Wednesday, February 14, 2018 1:41 PM
**To:** Jaworowski, Suzanne
**Subject:** RE: December MNC and Help for Fund Raising

You can always make it both!

For you it is a relatively short drive. (b) (6)

John

**From:** Jaworowski, Suzanne [mailto:Suzanne.Jaworowski@hq.doe.gov]
**Sent:** Wednesday, February 14, 2018 1:13 PM
**To:** Greenwood, John H <jgreenwood@firstenergycorp.com>
**Subject:** [EXTERNAL] RE: December MNC and Help for Fund Raising

Thanks John.

Once you get us the date we'll get someone there. It will likely be me or Brad Williams.

Thanks!
Suzie

**Suzanne Jaworowski**
Senior Advisor
U.S. Department of Energy | Office of Nuclear Energy
202-586-2240

**From:** Greenwood, John H [mailto:jgreenwood@firstenergycorp.com]
**Sent:** Tuesday, February 13, 2018 12:18 PM
**To:** Jaworowski, Suzanne <Suzanne.Jaworowski@hq.doe.gov>
**Subject:** RE: December MNC and Help for Fund Raising

I think I have a good design concept. If we can have you or someone do a Keynote or give talking points which we can advertise as occurring during the event that would be great.

MI-OH ANS is a registered 501 C 3 in the state of Michigan, if that matters.

The helping hand is to put an emphasis to the plants and leadership at the different venues to attend. Doug Huey, one of our Directors is on board with arm twisting.
If I can find someone like that at each plant... that will help make the effort a success.

Thanks!

John



AMERICAN OVERSIGHT

**From:** Jaworowski, Suzanne [mailto:Suzanne.Jaworowski@hq.doe.gov]
**Sent:** Tuesday, February 13, 2018 11:28 AM
**To:** Greenwood, John H <jgreenwood@firstenergycorp.com>
**Subject:** [EXTERNAL] RE: December MNC and Help for Fund Raising

Hi John,

(b) (6) However, we cannot do the invitation for a fundraiser.

We can do a media advisory if our staff is attending.

Are you just looking for design help?

Suzie

---

**From:** Greenwood, John H [mailto:jgreenwood@firstenergycorp.com]
**Sent:** Tuesday, February 13, 2018 10:38 AM
**To:** Jaworowski, Suzanne <Suzanne.Jaworowski@hq.doe.gov>; Michael K Brandon <michael.brandon@dteenergy.com>; Eric G. Meyer <eric@generationatomic.org>; Huey, Douglas B <dhuey@firstenergycorp.com>
**Cc:** Olsen, Karla <Karla.Olsen@EE.Doe.Gov>; Trunzo, Alisa (CONTR) <Alisa.Trunzo@Nuclear.Energy.Gov>
**Subject:** RE: December MNC and Help for Fund Raising

Thanks Suzie,

I will get the dates to you soon.

Best,

John H. Greenwood

---

**From:** Jaworowski, Suzanne [mailto:Suzanne.Jaworowski@hq.doe.gov]
**Sent:** Tuesday, February 13, 2018 10:03 AM
**To:** Greenwood, John H <jgreenwood@firstenergycorp.com>; Michael K Brandon <michael.brandon@dteenergy.com>; Eric G. Meyer <eric@generationatomic.org>; Huey, Douglas B <dhuey@firstenergycorp.com>
**Cc:** Olsen, Karla <Karla.Olsen@EE.Doe.Gov>; Trunzo, Alisa (CONTR) <Alisa.Trunzo@Nuclear.Energy.Gov>
**Subject:** [EXTERNAL] RE: December MNC and Help for Fund Raising

Hi John,

Great to hear from you. That sounds like a great idea.

(b) (6)

I am copying Karla – to see if we can provide you with an invite? I am not sure about that, but we can share the invite.

I am copying Alisa on the MNC at the end of the year.

That all sounds great. Let us know the dates for the MNC and the Golf Outing and we'll get it on the calendar.

Thank you.



AMERICAN OVERSIGHT

Suzie

**From:** Greenwood, John H [mailto:jgreenwood@firstenergycorp.com]
**Sent:** Tuesday, February 13, 2018 9:42 AM
**To:** Jaworowski, Suzanne <Suzanne.Jaworowski@hq.doe.gov>; Michael K Brandon <michael.brandon@dteenergy.com>; Eric G. Meyer <eric@generationatomic.org>; Huey, Douglas B <dhuey@firstenergycorp.com>
**Subject:** December MNC and Help for Fund Raising

Hi Suzie,

I would like to do an end of the year Millennial Nuclear Caucus at the University of Michigan towards the end of the year. Again, I am looking to make it a big push on campus to get students across multiple disciplines interested in Nuclear. This will be done in a way that utilizes Generation Atomic.

To do this well, I am going to need to do some fund raising on behalf of MI-OH ANS. I am planning to establish a Golf outing this Summer. Funds raised by the outing will be used for general MI-OH ANS chapter operations, but a good deal of it would go to an MNC event and surrounding promotional and workup costs.

What I am hoping to gain is DOE bump or endorsement of some sort to help sell participation in the outing. My target donors and players in the outing is the Nuclear Generating Stations in Michigan and Ohio, plus all the University and Community College Nuclear Programs.

I am thinking an appearance from you or the Assistant Secretary (or both) would be a great way to drive interest. If you could write an Invite to the event that I could use to send to the stations that would be excellent! I know there are limits on what you can and cannot do.

I think the concept is solid though, I noticed that the best DOE Office of Nuclear Video is now the Eric MNC video.

Hope all is going well with the Texas MNC!

Best Regards,

John H. Greenwood
Nuclear Engineer
Davis-Besse Nuclear Power Station
O:(419) 249-2322
C: (b) (6)

---

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**

---

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent**



AMERICAN OVERSIGHT

**responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**

---

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**

---

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document iu error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**



AMERICAN OVERSIGHT

**Rokebrand, Celtia R. (CONTR)**

**From:** Carey, Michael <mcarey@coalsource.com>
**Sent:** Friday, February 23, 2018 7:19 AM
**To:** McCormack, Brian
**Subject:** Letters
**Attachments:** 2018.2.15 ltr to Trump re Nuclear energy value.pdf; Letter to President Trump 02202018.pdf; 022018 CER ltr to President Trump.pdf; 2.20.18 Baseload Power Plants JPH letter to President Trump.pdf; IBB Jones Letter Pres Trump 022118.PDF; 2-21-2018 Final Signed Letter to the President on Electric Grid Resiliency.pdf



AMERICAN OVERSIGHT

# Congress of the United States
## Washington, DC 20515

February 15, 2018

President Donald J. Trump
The White House
1600 Pennsylvania Ave, NW
Washington, DC 20050

Dear President Trump,

We write to urge immediate action to support clean American electricity generation in the form of nuclear power. Rapid changes in the energy sector over the last decade, most notably the discovery of large amounts of natural gas and the corresponding advancements in drilling technology, have driven down the price of electricity generation from gas-fired power plants and undercut baseload generation at nuclear power plants.

Nuclear power is abundant, reliable, inexpensive, carbon free, and relatively immune from unpredictable conditions that can disrupt the delivery of other fuels. From a national security perspective, nuclear energy is a key component of our national nuclear strategy. Premature closure of America's nuclear power plants threatens our competitive edge in this field. Without a commitment to nuclear power, nuclear technology development will decline and the Nation's technical advantage in this sector will rapidly erode. Our commercial nuclear energy industry and the United States' nuclear weapons complex complement each other to ensure our great Nation maintains the best nuclear talent and technology in the world. According to a report by the Global Nexus Initiative, if current trends continue, the U.S. will cede its lead in the nuclear power market to Russia, China, and India in the coming decades.

The Energy Futures Initiative, which is led by Former Secretary of Energy Ernest Moniz, recently released a report that stated that a commercial atomic power sector is necessary to keep uranium-processing technology away from terrorists and other bad actors. Additionally, it will support nuclear-powered Navy vessels. The U.S. needs companies and engineers that can both build and run nuclear enterprises. The U.S. Navy's reactors require supplies and qualified engineers, and American nuclear scientists fill vital national security roles, it said. According to the report, a "shrinking commercial enterprise will have long term spillover effects on the Navy supply chain, including lessened enthusiasm among American citizens to pursue nuclear technology careers."

Unfortunately, recent news reports reveal that Ohio's only two nuclear power plants appear headed for premature closure. The Davis-Besse and Perry nuclear power plants in northern Ohio are important components to the regional economy and to America's energy security. These high-performing plants are economic engines that provide good-paying jobs both at the plants and through a far-reaching supply chain. These jobs support thriving communities and generate critical tax revenue that fund essential services. Northeast Ohio's Port Clinton News-Herald reported that public schools in Perry stand to lose $2.3 million in funding if the Perry nuclear

PRINTED ON RECYCLED PAPER

AMERICAN OVERSIGHT

power plant closes. In addition, Ohio's two nuclear power plants produce 90 percent of the state's carbon-free electricity.

We urge you and your Administration to step in and offer immediate assistance to prevent these critical generators from closing prematurely. A robust nuclear energy enterprise is a key enabler of the Nation's nonproliferation goals and supports both the fleet modernization plans of the U.S. Navy as well as the global strategic stability and deterrence value of nuclear weapons. We ask that your Administration work with Ohio and other states with nuclear power facilities in financial distress to harmonize federal and state policies affecting the design of organized electricity markets. Specifically, we believe that these markets should appropriately value attributes including reliability, supply diversity, greenhouse gas emissions, and relative national security importance. Time is of the essence.

Sincerely,

Marcy Kaptur
Member of Congress

David P. Joyce
Member of Congress

Marcia L. Fudge
Member of Congress

Tim Ryan
Member of Congress

CC: Hon. Rick Perry, Secretary of Energy

AMERICAN OVERSIGHT

UTILITY WORKERS UNION OF AMERICA

D. MICHAEL LANGFORD
PRESIDENT

STEVEN VANSLOOTEN
EXECUTIVE VICE PRESIDENT

MICHAEL COLEMAN
SECRETARY-TREASURER

JOHN DUFFY
VICE PRESIDENT

EXECUTIVE BOARD MEMBERS

JAMES SLEV N
M LT DAVIS
NOEL J. CHRISTMAS
V NCENT KYNE
ANTHONY PEDAGNA
MICHAEL P. SMITH

TRAVIS L. BECK
GREG ADAMS
TIM COX
DANIEL LEARY
CRAIG A. PINKHAM
JOSEPH G. SWENGLISH

ROBERT D. LEWIS
J M ANDERSON
PATRICK M. D LLON
FRANK MEZNARICH SR.
JAV ER A. SALAS
DARRYL K. TAYLOR

CRAIG A. WRIGHT
NICHOLAS J. CARACAPPA
KEITH HOLMES
RICHARD J. PASSARELLI
JAMES SHILLITTO

1300 L STREET, N.W.
SUITE 1200
WASHINGTON, D.C. 20005
202-899-2851
202-899-2852 FAX
www.uwua.net

February 20, 2018

President Donald J. Trump
The White House
1600 Pennsylvania Ave, NW
Washington, DC 20050

Dear President Trump,

The hard-working men and woman who work in our nation's power plants need your help – and they need your help now. Last month, the Federal Energy Regulatory Commission (FERC) rejected a proposed rule by the Department of Energy (DOE) that would have correeted competitive electricity markets to appropriately value attributes uniquely provided by fuel-secure baseload generators - predominantly critical coal and nuclear power plants. FERC's failure to timely address the pressing need to fix America's electricity markets will have devastating consequences for our economy, our power grid, and our national security.

Most alarmingly, power plant closures will be immediate and irreversible. Largely because of punitive regulatory pressures against coal and nuclear power, approximately 60,000 megawatts of fuel-secure baseload power plants have closed over the last several years and many more are slated for premature closure in the near future. Unfortunately, the improved regulatory environment will not stop those closures from happening. Electricity market rules simply do not value the reliability and resiliency attributes that fuel-secure baseload generators provide the grid.

The imminent closure of these plants will have far-reaching effects. First and foremost, the nation's power grid needs fuel-secure baseload power. Coal and nuclear fuel are abundant, reliable, affordable and not vulnerable and unpredictable conditions or emergencies that can disrupt the delivery of other fuels. Coal-fired power plants can stockpile several weeks' or months' worth of fuel on site; nuclear generators store enough fuel to last months or even years.

In the case of an extreme weather emergency, a coordinated attack or any significant disruptions to the fuel delivery infrastructure, fuel-secure baseload generators are the only ones capable of continuing operations. If fuel-secure baseload plants continue to be forced to retire, our power grid is likely to become overloaded or fail in the event of a sudden, extreme increase in demand.

This is not merely a hypothetical situation: the 2014 polar vortex stretched the country's natural gas pipeline system well past its capabilities, resulting in skyrocketing prices and fuel shortages. These shortages during extreme cold temperatures could have been deadly, if not for fuel-secure baseload power plants that essentially carried the grid through the extended emergency. Many of the generators that were running full- out have since retired.

Experts agree. The North American Electric Reliability Corporation (NERC), which is responsible for establishing reliability standards for our grid, described the tenuous situation well in comments it provided to Secretary Perry's proposal. NERC said "Coal and nuclear generation generally have the unique attributes of low outage rates, high availability rates, and, with on-site storage, low fuel supply sensitivity necessary to provide secure and stable capacity to the grid. While their current benefits and potential are significant, non-synchronous

AMERICAN OVERSIGHT

generation and natural gas-fired facilities do not currently replace the secure capacity provided by coal and nuclear generation."

FERC's failure to approve the DOE proposal to properly value the reliability and resiliency attributes uniquely provided by fuel-secure baseload generators could soon prove to be a catastrophic mistake. We do not have the luxury of kicking the can any farther down the road. Without immediate action to stop the imminent closure of fuel-secure baseload generators, our country will find itself confronted with a crisis that could have been prevented. This is not a question of if, but when.

I urge the White House to direct DOE Secretary Rick Perry to use the emergency powers under his authority to stop the coming closures of additional coal and nuclear plants across the country. This is the only way to prevent the impending disaster. The country cannot afford further delays. DOE must act right away.



Sincerely,
D. Michael Langford
National President
Utility Workers Union of America, AFL-CIO

CC: Hon. Rick Perry, Secretary of Energy

AMERICAN OVERSIGHT

United Mine Workers of America

CECIL E. ROBERTS
INTERNATIONAL PRESIDENT

TELEPHONE
(703) 291-2420
FAX (703) 291-2451

UNITED MINE WORKERS' HEADQUARTERS
18354 QUANTICO GATEWAY DRIVE, SUITE 200
Triangle, VA
22172-1779

February 20, 2018

President Donald J. Trump
The White House
1600 Pennsylvania Avenue, N.W.
Washington, DC 20500

Dear President Trump:

The imminent closure of dozens of coal-fired power plants is a crisis that needs to be addressed right away. As you know, a recent Department of Energy (DOE) proposal to correct electricity markets to properly value baseload energy sources would have prevented these closures while ensuring grid reliability and resilience. Unfortunately, the Federal Energy Regulatory Commission (FERC) rejected the proposal.

However, the Commission's inaction does not mean the problem has gone away. The plants in question will not re-open once they are offline. They will be added to the hundreds of coal-fired plants that have closed for good in recent years. The warning signs for the coming crisis have been on the horizon for years. It is no longer a far-off possibility: FERC's own projections show that 20,650 MW of coal capacity will close by 2020.

The American power grid is fueled by a diverse mix of resources, including natural gas, wind, and solar power. However, at its core, the grid relies on baseload sources like coal and nuclear power. Without these baseload sources, the grid becomes instantly vulnerable to extreme weather events, natural disasters, fuel supply chain disruptions, and terrorist attacks.

The closure of additional coal-fired plants means our grid will face a crisis scenario – possibly very soon. Such a crisis nearly took place in 2014, when the polar vortex stretched the natural gas supply beyond its limits and communities across the country faced electricity shortages and extreme spikes in price for available fuel. The scenario would have been deadly, but baseload power resources were able to supplement natural gas pipeline constraints and provide adequate power to distressed areas.

That was four years ago. The situation is now even more dire. Coal-fired plants can store weeks' worth of fuel on-site and therefore do not have the same supply chain vulnerabilities as

AMERICAN OVERSIGHT

other resources such as natural gas. But the availability of these stockpiled resources is diminishing by the day.

Coal mining, transportation, and related electric power generation account for more than 800,000 direct and indirect jobs, many in economically distressed regions of the nation. We cannot afford to lose these good middle-class jobs, or the coal mines and power plants that provide the bulk of community tax bases supporting essential services such as education, firefighters and police.

In addition, any more plant closings will only exacerbate the looming crisis with respect to the pensions of more than 107,000 current and future retired miners and surviving spouses. Coal industry bankruptcies over the last several years – caused by the premature plant closings and utility fuel switching – have eliminated more than $100 million in annual contributions to the retirees' pension plan. Any further bankruptcies of contributing employers will cause the plan to collapse.

FERC's inaction leaves few options to stave off serious problems for our electric grid and economic disaster for hundreds of thousands of our nation's energy workers, retirees and those who live in their communities. I urge you to take the necessary steps to prevent the closure of additional coal-fired power plants.

The security and stability of our power grid is at risk, along with thousands of jobs in already hard-hit parts of our nation. Emergency action – now – is only way to prevent further deterioration of our country's reliable and affordable energy supply.

Sincerely,

Cecil E. Roberts

cc: Rick Perry, Secretary of Energy
Levi Allen, International Secretary-Treasurer
International Executive Board
Regional Directors
Department Heads

AMERICAN OVERSIGHT

INTERNATIONAL BROTHERHOOD OF TEAMSTERS

JAMES P. HOFFA
General President

25 Louisiana Avenue, NW
Washington, DC 20001

KEN HALL
General Secretary-Treasurer

202.624.6800
www.teamster.org

February 20, 2018

President Donald J. Trump
The White House
1600 Pennsylvania Avenue NW
Washington, D.C. 20500

Dear Mr. President:

On behalf of the 1.4 million members of the International Brotherhood of Teamsters, I urge your immediate action to secure our nation's baseload power plants and the long-term security and resilience of the electric grid. The Teamsters represent individuals employed in virtually every occupation imaginable, both professional and non-professional, private sector and public sector. Baseload coal and nuclear power plants directly employ more than 154,000 workers, produce major infrastructure projects that put Americans to work, and support a resilient and dependable electric grid.

Baseload power plants have long been the dependable work horses of the electric system, providing energy and ancillary services to customers 24 hours a day, 365 days a year. With significant on-site fuel reserves, they provide the resilience required to keep electricity flowing under all adverse circumstances. Unlike other energy resources, their operation is not subject to interruption by factors such as extreme weather events or attacks on infrastructure. Our national security, and the economic base of communities across the nation, is dependent on maintaining these plants to support a resilient supply of affordable electricity.

However, numerous baseload power plants have permanently shut down in recent years, and many more are expected to close prematurely in the very near future. Once they are gone, they are gone for good. Baseload generation is under serious threat from market-distorting subsidies and mandates, regulations that target these resources and markets that don't value resilience.

AMERICAN OVERSIGHT

We are at a crisis point. Further decline in the number of plants will not only impact the grid and national security, it will cost valuable jobs and discourage industrial development opportunities nationwide. This is an outcome the Teamsters and America simply can't afford.

Unless corrective actions are taken, including new mechanisms that recognize baseload attributes and ensure appropriate compensation for providing the resilience and dependability benefits, the long-term viability of these baseload plants along with the jobs and community economic benefits they bring is in peril. I urge you to direct Secretary Perry to use his emergency authority to save our nation's valuable baseload power plants.

Sincerely,

James P. Hoffa

James P. Hoffa
General President
International Brotherhood of Teamsters

AMERICAN OVERSIGHT

International Brotherhood of
**BOILERMAKERS • IRON SHIP BUILDERS**

753 State Avenue

**NEWTON B. JONES**
INTERNATIONAL PRESIDENT
SUITE 570
913-371-2640
FAX: 913-281-8101

**BLACKSMITHS • FORGERS & HELPERS**

Kansas City, Kansas 66101-2511

**WILLIAM T. CREEDEN**
INTERNATIONAL SECRETARY-TREASURER
SUITE 565
913-371-2640
FAX: 913-281-8102

February 21, 2018

President Donald J. Trump
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20050

Dear President Trump,

On behalf of the International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers (Boilermakers), I write to urge action by your administration, through the Department of Energy (DOE), to use emergency powers to avoid the imminent closure of critical coal and nuclear power plants. Hundreds of coal-fueled generating plants have closed over the past several years due to lower natural gas prices and stringent EPA regulations. Some nuclear units are at risk because they cannot recover their costs under current electricity market rules, leaving some states struggling to ensure their economic viability.

Recently, the Federal Energy Regulatory Commission (FERC) rejected a proposed rule by DOE to provide full cost recovery for coal and nuclear units operating in competitive power markets. This rule would have helped to ensure fuel diversity and resilience of the electric power grid by correcting competitive electricity markets in the way that power producers are compensated. DOE's proposed rule recognized that baseload coal and nuclear plants provide unique benefits to the electric grid due to the security of their "on the ground" fuel supplies and their inherent stability and reliability.

Unfortunately, the lack of action by FERC has now left too many of these coal and nuclear power plants vulnerable to imminent retirement. These plant closures will certainly result in further strain on the electric grid and reliability - not to mention the detrimental effects on the communities that these plants support through a strong tax base and steady employment, including thousands of highly-skilled Boilermakers who construct and maintain these coal and nuclear units.

Too many baseload power plants have already closed in recent years. The premature retirement of many more due to outdated market rules will further undermine electric reliability, affecting consumers, manufacturing industries, and high-tech businesses. Once these baseload power plants close, they do not reopen.

AMERICAN OVERSIGHT

FERC's refusal to address this problem as proposed by DOE has left few alternatives and, in our view, requires immediate, corrective action by DOE.

I urge you to direct DOE Secretary Perry to use his emergency authority to intervene in this serious situation to prevent the further closure of coal and nuclear baseload generators.

Sincerely,

Newton B. Jones
International President

cc: Hon. Rick Perry, Secretary, Department of Energy
U.S. International Vice Presidents

AMERICAN OVERSIGHT

# Congress of the United States
## Washington, DC 20515

February 21, 2018

The Honorable Donald J. Trump
President of the United States
The White House
1600 Pennsylvania Avenue, NW
Washington DC 20500

Dear Mr. President,

We write to express our concern regarding the preservation of our nation's fuel-secure generation capacity and threats to the resiliency of the nation's electric grid. We must ensure that the grid provides affordable, reliable, and resilient electricity on a daily basis. As a matter of both national and economic security, the electric grid must have the resiliency to respond to extreme circumstances.

Fuel-secure baseload generators, primarily coal and nuclear, are under duress. An alarming number of coal and nuclear plants have closed prematurely and more are closing at a fast rate. This is especially true in the competitive, so-called merchant markets. The rate of plant closures has a compounding effect on grid resiliency – the ability to operate through an emergency or extreme conditions – by placing undue risk of severe consequences on the system.

Our nation's nuclear and coal plants are predominantly immune to short-term fuel supply disruptions, which makes them resilient. Evidence of how integral they are to the U.S. was demonstrated in 2014 when the Polar Vortex overstressed the grid, and many generation sources were unable to respond to power needs because of fuel supply disruptions. When the grid in much of the U.S. narrowly avoided operational failure, it was fuel-secure baseload power plants and not variable sources of electricity or those with interruptible fuel supplies that provided a resilient source of electricity.

A major factor putting coal and nuclear plants at a disadvantage are federal and state subsidies to intermittent power providers, making them artificially competitive. Additionally, government mandates for purchases of certain forms of electricity and excessive regulations on nuclear and coal providers negatively impact those resources' cost competitiveness. Adding to those headwinds, grid operators (Regional Transmission Organizations – RTOs) fail to create market rules that fairly compensate fuel-secure baseload generators for the resiliency they provide the grid. Coal and nuclear generators

PRINTED ON RECYCLED PAPER

AMERICAN OVERSIGHT

maintain adequate fuel on-site to ride through an extended emergency, and do so without being compensated for that.

Beyond the risk injected into the electric grid carried over from the previous administration, there are national economic concerns at play too. If anti-resiliency bias within the RTOs' pricing models persists, thousands of workers and their families will be negatively affected. For generations, nuclear and coal have provided well-paying jobs in communities across America. Further plant closures will have huge negative economic effects, rippling across entire regions and drive up electric prices for ratepayers. Without your immediate help, these industries will not be able to provide the good jobs and the resilient electricity supply our nation currently has.

Mr. President, we are asking you to safeguard the grid's fuel security and direct the Secretary of Energy to exercise his Section 202(c) emergency powers under the Federal Power Act. We also request the Department of Energy evaluate the announced and expected retirement of additional fuel-secure baseload generation units and the potential national security and economic ramifications. Gambling with the resiliency of the electric grid is unnecessary and puts the safety of all Americans at risk.

We applaud the extraordinary efforts you have already made to help turn our nation's struggling economy around, especially for middleclass workers. We hope that you will recognize the immediate severity of this issue and will take appropriate action to safeguard the electric grid's resiliency.

Thank you for your leadership, and your efforts to ensure that our nation has a safe and resilient electric grid.

Sincerely,

Keith J. Rothfus
Member of Congress

David B. McKinley, P.E.
Member of Congress

Shelley Moore Capito
U.S. Senator

Mitch McConnell
U.S. Senate Majority Leader

AMERICAN OVERSIGHT

Steve Stivers
Member of Congress

Alexander X. Mooney
Member of Congress

Andy Barr
Member of Congress

Evan Jenkins
Member of Congress

Scott Perry
Member of Congress

David P. Joyce
Member of Congress

Mike Kelly
Member of Congress

Mike Bost
Member of Congress

James Comer
Member of Congress

Bill Johnson
Member of Congress

Warren Davidson
Member of Congress

Rodney Davis
Member of Congress

Joe Manchin III
U.S. Senator

H. Morgan Griffith
Member of Congress

AMERICAN OVERSIGHT

Bob Gibbs
Member of Congress

Glenn "GT" Thompson
Member of Congress

Robert E. Latta
Member of Congress

Larry Bucshon, M.D.
Member of Congress

Jim Jordan
Member of Congress

AMERICAN OVERSIGHT

**Rokebrand, Celtia R. (CONTR)**

**From:** Greenwood, John H <jgreenwood@firstenergycorp.com>
**Sent:** Monday, June 18, 2018 4:04 PM
**To:** Eric G. Meyer;Jaworowski, Suzanne
**Subject:** A Greenwood Draft of the Energy Declaration

Hi Eric,

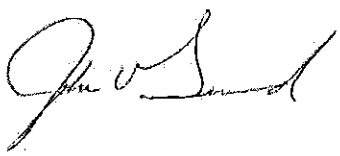
I took a quick stab. Really a straw man for the Declaration. The first paragraph is a direct rip from the Declaration of Independence. However, I set the declaration to the over arching fault and problems I see in the world when it comes to energy. In that instance I made it much less directly about nuclear technology, but more so that in the 21st century that access to energy is essential to the protection of our timeless unalienable rights. That now in the course of human history we have the knowledge and resource to provide that energy to all and protect the natural order. See my draft below. I am hoping for gravitas, and I am hoping for disagreement so we can make a meaningful declaration and an impactful rallying thought for the members of ANS.

When in the Course of human events it becomes necessary for one people to dissolve the political bands which have connected them with another and assume among the powers of the earth, the separate and equal station to which the Laws of Nature entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold the following to principles of governance to be self-evident, man-kind is specially endowed with dominion over the earth, governance of the earth's resources must be executed by a means in which the natural order is respected, and men's unalienable rights are preserved. Time has had no change on the unalienable right's of Life, Liberty, and the pursuit of Happiness. In the 21st century it is inarguable that access to energy is required to secure these rights. Mankind now possess the knowledge and technology to produce energy that can utilized by all according to the principles we believe. That the execution of governance in energy markets are not aligned these principles and millions needlessly live in poverty and needless environmental harm is inflicted upon the planet of which we hold dominion.

**We need to insert examples of the assertions of energy inequality here, and also needless environmental harm.**

We, therefore, the representatives of nuclear technologies, assembled, appealing to all mankind, do solemnly publish and declare, that by all means we will engage all governments to dissolve roadblocks to full proliferation of energy to all, to serve to improve the world as we know it in in our generation and preserve the resources to this earth and all resources that come into the dominion of mankind through the application of science into the free utilization of energy for all. And for the support of this Declaration, with the firm reliance on the protection of All, we mutually pledge to each other our Lives, our Fortunes, and our Sacred Honor.



**John H. Greenwood**
Manager, External Affairs
O: 724.598.4748
C: (b) (6)
jgreenwood@firstenergycorp.com



AMERICAN OVERSIGHT

PennPower
A FirstEnergy Company

Customer Service
1.800.720.3600
firstenergycorp.com

Outages
1.888.LIGHTSS (1.888.544.4877)
firstenergycorp.com/outages

---

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**



AMERICAN OVERSIGHT

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

MAY 15 2019

Re: FOIA No. FY18-113
Fifth Response Letter

**VIA EMAIL AND REGULAR MAIL**

Mohammad Aslami
Union of Concerned Scientists
1825 K St., NW
Suite 800
Washington, DC 20006-1232
maslami@ucsusa.org

Dear Mr. Mohammad Aslami:

This is a fifth rolling response to your request, filed August 23, 2018, for information pursuant to the Freedom of Information Act (FOIA),[1] and the Federal Energy Regulatory Commission's (Commission) FOIA regulations, specifically 18 C.F.R. § 388.108 (2018). Specifically, you requested:

1. *All emails, email attachments, or calendar invitations/entries – from March 1, 2018 to the present – sent by or received from Travis Fisher containing certain terms.*[2]

2. *All emails, email attachments, or calendar invitations/entries – from January 1, 2018 to present – sent by or received from Anthony Pugliese containing certain terms.*[3]

On October 11, 2018, the Commission issued its first rolling response releasing 30 documents and withholding in their entirety 147 documents. On December 20, 2018, the Commission issued its second rolling response releasing an additional 30 documents and withholding in their entirety 240 documents. On January 23, 2019, the Commission issued

---

[1] 5 U.S.C. § 552(a) *as amended by* the FOIA Improvement Act of 2016, Pub. L. No. 114-185, 130 Stat. 538 (2017).

[2] Terms include: Coal, Nuclear, Resiliency, Critical Infrastructure, Reliability, White House, Federal Power Act, FPA, Defense Production Act, DPA, DOE.hq.gov, EOP.gov, Perry, 202(c), McNamee.

[3] Same terms as Footnote 2.

AMERICAN OVERSIGHT

its third rolling response releasing an additional 40 documents and not withholding any documents.

On February 14, 2019, you agreed to narrow the search to alter the start date for Anthony Pugliese's emails to March 1, 2018 and to exclude the terms "Federal Power Act," "FPA," "Perry," and "White House" from the search entirely. Based on these new terms, on April 5, 2019, the Commission issued its fourth rolling response releasing 67 documents and withholding in their entirety 88 documents. These responses also informed you that there are potentially numerous additional responsive documents that would be released on a rolling basis.

Based on these new search terms, the Commission has made a determination as to 180 additional documents, covered in this response. Of the 180 documents, 61 are being released in whole or in part, and 119 documents are being withheld in their entirety. With the exception of four documents, which are being withheld under FOIA Exemption 6, all non-disclosed portions are being withheld under FOIA Exemption 5. *See* 5 U.S.C. § 552(b)(5) (protecting inter-agency or intra-agency memoranda); 5 U.S.C. § 552(b)(6) (protecting personnel . . . and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy). FOIA Exemption 5 is being invoked to protect FERC Officials internal views, comments, preliminary thoughts, and analysis of various matters before the Commission.[4] FOIA Exemption 6 is being invoked to protect personnel matters.

Given the high volume of information requested and the amount of Commission staff time required to process any responsive documents under the revised narrowed search for documents, we will continue to process the remaining documents on a rolling basis.[5] We will endeavor to provide you with another determination within twenty business days or sooner, and complete final processing as soon as possible.

Ordinarily, any appeal from a FOIA determination must be filed within 90 days of the date of issuance as provided by the Freedom of Information Act and 18 C.F.R. § 388.110(a)(1) of the Commission's regulations. However, because your request is being

---

[4] As a courtesy, enclosed is an index of all documents being withheld in full under this response.

[5] *See S. Yuba River Citizens League v. Nat'l Marine Fisheries Serv.*, No. Civ. S-06-2845, 2008 U.S. Dist. LEXIS 107177, 47 (E.D. Cal. June 20, 2008) (supporting the practice of releasing documents on a rolling basis); *Hinton v. Fed. Bureau of Investigations*, 527 F. Supp. 223, 225 (E.D. Penn. 1981) (noting that rolling responses preserve the government's right to carefully review material while promoting FOIA's disclosure goals); *see also* U.S. Dep't of Justice, *FOIA Post*, "OIP Guidance: The importance of Good Communication with FOIA requesters," (posted 2010) (stating agencies should provide rolling responses for requests involving voluminous material).

AMERICAN OVERSIGHT

processed on a rolling basis, the Commission will hold your appeal rights in abeyance pending a final determination. This will allow you to file a single appeal at the conclusion of our processing of your request.[6]

If you decide to appeal, this appeal must be in writing, addressed to James P. Danly, General Counsel, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, D.C. 20426, and clearly marked "Freedom of Information Act Appeal." Please include a copy to Charles A. Beamon, Associate General Counsel, General and Administrative Law, at the same address.

You have the right to seek dispute resolution services from the FOIA Public Liaison of the agency or the Office of Government Information Services (OGIS). Using OGIS services does not affect your right to pursue your appeal. You may contact OGIS by email at ogis@nara.gov; telephone at (877) 684-6448; facsimile at (301) 837-0348; or by mail to the Office of Government Information Services, National Archives and Records Administration, Room 2510, 8601 Adelphi Road, College Park, MD 20740-6001.

Sincerely,

Leonard M. Tao
Director
Office of External Affairs

Enclosures (61)

[6] In lieu of filing a FOIA appeal with the Commission, on November 15, 2018, you filed a Complaint in the United States District Court of Columbia, designated as Civil Action No. 18-cv-02615-DLF.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

[redacted]

**From:** Travis Fisher
**Sent:** [redacted]
**To:** Kal Ayoub
**Subject:** Accepted: Conference Call with DOE Staff: [redacted]



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Travis Fisher
**To:** Deepak Ramlatchan
**Subject:** Accepted: [redacted] Memo Discussion

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

[redacted]

**From:** Travis Fisher
**Sent:** Tuesday, July 3, 2018 10:28 AM
**To:** Deepak Ramlatchan
**Subject:** Accepted: [redacted] Memo Discussion



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky
**To:** Nicholas Gladd; Angela Amos; Carolyn Clarkin; Laura Swett; Anthony Pugliese
**Cc:** Martin Kirkwood
**Subject:** ADVISORS ONLY - 500 Mw Hydro Pumped Storage Project
**Attachments:** LEAPS HANDOUT FOR COMMISSIONER MEETING March.docx

---

Attendees:
Rex Wait, President, Nevada Hydro Company
John Bobenic, Grafton Fund
Elias Farrah, outside legal counsel

Text of Original Request:

Tracy
My name is Eli Farrah and I am a partner at Winston & Strawn here in Washington, DC and I represent a large 500 Mw Hydro Pumped Storage Project in Southern California that is under development. The Project has been under development for many years and just recently has a new investor, Grafton, which is a large energy fund. We would like to come by and meet with the Chairman to introduce ourselves and to explain why we will be filing a petition with the Commission to address rate recovery uncertainty that was intended to be resolved by the Commission's January 2017 Storage Policy Statement.

We would like to spend just 15-30 minutes separately with the Chairman and each of the other Commissioners the week of March 5th and was hoping you could help us schedule the meetings.

I note that as a hydro project we have a license application pending but we do not intend to address licensing issues at all. We only intend to discuss rate issues governed by the Storage Policy Statement that are not pending in any docket.
Your help would be greatly appreciated!
Eli Elias G. Farrah

Partner

Winston & Strawn LLP
1700 K Street, N.W.
Washington, DC 20006-3817

D: [redacted]

F: +1 202-282-5100

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky
**To:** Anthony Pugliese; Carolyn Clarkin; Nicholas Gladd; Angela Amos; Laura Swett
**Cc:** Martin Kirkwood
**Subject:** ADVISORS ONLY - Balancing Authority of Northern California
**Attachments:** Jim Shetler Bio 2018.docx
Braun Bio 2018.docx

---

Attendees:
Jim Shelter, General Manager, BANC
Tony Braun, Partner, Braun Blaising Smith Wynne

Text of Original Request:

Name: Tony Braun
Title: Counsel
Company / Organization: BANC
Phone Number: [redacted]
Web Address: http://www.thebanc.org/
Email: [redacted]ubject=RE: Request for a Meeting with Chairman Neil Chatterjee>
Purpose of Meeting (Detailed Description): The Balancing Authority of Northern California (BANC) requests a meeting with Chairman McIntyre to discuss upcoming matters pertaining to BANC's participation in the Western Energy Imbalance Market (EIM). BANC is a California joint powers authority that operates as a public agency under California law. BANC is a registered Balancing Authority with the North American Electric Reliability Corporation and operates as a neighboring Balancing Authority Area (BAA) to the California Independent System Operator (CAISO) BAA. BANC's BAA includes several public power entities: the Cities of Redding, Roseville, and Shasta Lake, California, the Modesto Irrigation District, the Sacramento Municipal Utility District, and the Trinity Public Utilities District. Federal hydropower facilities and associated transmission operated by the Western Area Power Administration are also within BANC. BANC anticipates that it will be the first public power entity to reach "EIM Go Live," with relevant agreements filed by the CAISO in the first quarter of this year. BANC representatives would like to meet with Chairman McIntyre, or his staff, in order to discuss some issues unique to BANC as a public power entity and reflecting operation of federal facilities within BANC. BANC representatives would also be available to discuss potential developments in western markets.
Is this matter before the Commission? No
Proposed Date for Meeting: 02/23/2018
Alternate Date for Meeting:
Estimate of the Number of people attending: 2

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky
**To:** Laura Swett; Carolyn Clarkin; Angela Amos; Nicholas Gladd; Anthony Pugliese
**Cc:** Martin Kirkwood; Michelle R. Brown
**Subject:** ADVISORS ONLY - NRECA & Stakeholders
**Attachments:** [redacted]
E Caplan bio.pdf
Bogorad Bio.doc
John Di Stasio.docx
Gene Grace.docx
JPHughes BIO.PDF
Pam Silberstein - bio.doc

---

Attendees:
Elise Caplan, APPA
Gene Grace, AWEA
John Hughes, ELCON
John Di Stasio, LPPC
Cindy Bogorad, Spiegel McDiarmid (TAPS)
Pam Silberstein, NRECA

Text of Original Request:

Name: Pamela Silberstein
Title: Sr. Director, Regulatory Counsel
Company / Organization: Nat'l Rural Electric Cooperative Assn
Phone Number: [redacted]
Web Address:
Email [redacted]
subject=RE:%20Request%20for%20a%20Meeting%20with%20Chairman%20Neil%20Chatterjee>
Purpose of Meeting (Detailed Description): NRECA is part of a diverse group of stakeholders that has been meeting over several months to discuss common interests and concerns regarding the wholesale markets and long-term resource adequacy. We support wholesale power markets and recognize that this is a time of significant change and re-examination of the role of these markets. Our goal has been to develop a set of common principles that we believe are critical to ensuring that the benefits of the wholesale electricity markets operated by Regional Transmission Organizations and Independent System Operators (RTOs/ISOs) are fully realized. We would like to meet with Chairman McIntyre to present and discuss these common principles. As of this writing, the stakeholder group includes: NRECA; the American Public Power Association (APPA); the Electricity Consumers Resource Council (ELCON); the American Wind Energy Association (AWEA); Advanced Energy Economy (AEE); the Large Public Power Council (LPPC), and the Sustainable FERC Project/NRDC. Notwithstanding the diverse and wide-ranging perspectives represented, these common principles reflect our mutual commitment to a robust, effective wholesale market that appropriately incents long-term generation investment; accommodates state and local policy objectives and resource decisions, and appropriately compensates diverse resources for the attributes they bring to the grid. We look forward to discussing this further with Chairman McIntyre. Thank you.
Is this matter before the Commission? Yes
Proposed Date for Meeting: March 5, 6, 9, 12, 13, 16 2018
Alternate Date for Meeting: March 20 - 23, 2018
Estimate of the Number of people attending: 6-8

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky
**To:** Laura Swett; Carolyn Clarkin; Angela Amos; Nicholas Gladd; Anthony Pugliese
**Cc:** Martin Kirkwood
**Subject:** ADVISORS ONLY - NRECA & Stakeholders
**Attachments:** [redacted]

---

Text of Original Request:

Name: Pamela Silberstein
Title: Sr. Director, Regulatory Counsel
Company / Organization: Nat'l Rural Electric Cooperative Assn
Phone Number: [redacted]
Web Address:
Email: [redacted]
subject=RE:%20Request%20for%20a%20Meeting%20with%20Chairman%20Neil%20Chatterjee>
Purpose of Meeting (Detailed Description): NRECA is part of a diverse group of stakeholders that has been meeting over several months to discuss common interests and concerns regarding the wholesale markets and long-term resource adequacy. We support wholesale power markets and recognize that this is a time of significant change and re-examination of the role of these markets. Our goal has been to develop a set of common principles that we believe are critical to ensuring that the benefits of the wholesale electricity markets operated by Regional Transmission Organizations and Independent System Operators (RTOs/ISOs) are fully realized. We would like to meet with Chairman McIntyre to present and discuss these common principles. As of this writing, the stakeholder group includes: NRECA; the American Public Power Association (APPA); the Electricity Consumers Resource Council (ELCON); the American Wind Energy Association (AWEA); Advanced Energy Economy (AEE); the Large Public Power Council (LPPC), and the Sustainable FERC Project/NRDC. Notwithstanding the diverse and wide-ranging perspectives represented, these common principles reflect our mutual commitment to a robust, effective wholesale market that appropriately incents long-term generation investment, accommodates state and local policy objectives and resource decisions, and appropriately compensates diverse resources for the attributes they bring to the grid. We look forward to discussing this further with Chairman McIntyre. Thank you.
Is this matter before the Commission? Yes
Proposed Date for Meeting: March 5, 6, 9, 12, 13, 16 2018
Alternate Date for Meeting: March 20 - 23, 2018
Estimate of the Number of people attending: 6-8

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Nicholas Gladd; Angela Amos; Anthony Pugliese; Laura Swett; Carolyn Clarkin
**Cc:** Martin Kirkwood
**Subject:** ADVISORS ONLY - Transmission Access Policy Study Group (TAPS)
**Attachments:** Bios for TAPS FERC Visits - March 19-20 2018.DOC

---

Attendees:
Cynthia Bogorad, Spiegel & McDiarmid LLP
Kevin M. Gaden, IMUA, IMEA, and IPEA
William Gallagher, Vermont Public Power Supply Authority
Tom Hanrahan, WPPI Energy
Douglas Healy, Healy Law Offices
Chris Norton, American Municipal Power, Inc.
Peter Prettyman, Indiana Power Agency
Ashley Stringer, Oklahoma Municipal Power Authority
John Twitty, Transmission Access Policy Study Group
Megan Wisersky, Madison Gas & Electric Company

Text of Original Request:

Michelle—
As just discussed by phone, the Transmission Access Policy Study Group (TAPS), an association of transmission dependent utilities in more than 35 states, is planning a visit to FERC on Wednesday, March 7, and is hoping to meet with Chairman McIntyre to introduce ourselves, explain our interests, and briefly discuss policy initiatives at FERC and NERC in which TAPS is actively engaged.
We'd appreciate it if you'd let us know as soon as possible whether the Chairman is able to meet with TAPS on March 7. Based on our phone discussion, 10 am looked promising, but please let us know if another time slot would work better. If the Chairman is unavailable on March 7, March 8 would also work for us.
We will provide a list of participating TAPS members before the meeting, but would expect the group to include Bill Gallagher (Vermont Public Power Supply Authority, who heads up TAPS reliability efforts), and John Twitty (TAPS Executive Director). I will accompany TAPS as counsel.
Thanks!
Cindy
Cynthia Bogorad
Partner
[redacted]
Spiegel & McDiarmid LLP
1875 Eye Street, NW
Suite 700
Washington, DC 20006
Phone: [redacted]
Fax: 202.393.2866
www.spiegelmcd.com <http://www.spiegelmcd.com/>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Nicholas Gladd; Angela Amos; Anthony Pugliese; Laura Swett; Carolyn Clarkin
**Cc:** Martin Kirkwood
**Subject:** ADVISORS ONLY - Transmission Access Policy Study Group (TAPS)

---

Text of Original Request:

Michelle—
As just discussed by phone, the Transmission Access Policy Study Group (TAPS), an association of transmission dependent utilities in more than 35 states, is planning a visit to FERC on Wednesday, March 7, and is hoping to meet with Chairman McIntyre to introduce ourselves, explain our interests, and briefly discuss policy initiatives at FERC and NERC in which TAPS is actively engaged.
We'd appreciate it if you'd let us know as soon as possible whether the Chairman is able to meet with TAPS on March 7. Based on our phone discussion,10 am looked promising, but please let us know if another time slot would work better. If the Chairman is unavailable on March 7, March 8 would also work for us.
We will provide a list of participating TAPS members before the meeting, but would expect the group to include Bill Gallagher (Vermont Public Power Supply Authority, who heads up TAPS reliability efforts), and John Twitty (TAPS Executive Director). I will accompany TAPS as counsel.
Thanks!
Cindy
Cynthia Bogorad
Partner
[redacted]
Spiegel & McDiarmid LLP
1875 Eye Street, NW
Suite 700
Washington, DC 20006
Phone: [redacted]
Fax: 202.393.2866
www.spiegelmcd.com <http://www.spiegelmcd.com/>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Anthony Pugliese; Angela Amos; Nicholas Gladd; Laura Swett; Carolyn Clarkin
**Cc:** Martin Kirkwood
**Subject:** American Petroleum Institute
**Attachments:** Bio-Jack-Gerard-4-5-17.pdf
Martin J. Durbin_Bio 10-2017.pdf
Todd Snitchler BIO 11-2017.pdf

---

Attendees:

Jack Gerard, President & CEO
Martin Durbin, Executive VP and Chief Strategy Officer
Todd Snitchler, Market Development Group Director

Text of Original Request:

Name: Jack Gerard
Title: President & CEO
Company / Organization: American Petroleum Institute (API)
Phone Number: [redacted]
Web Address:
Email: gerardj@api.org <mailto:gerardj@api.org?subject=RE:%20Request%20for%20a%20Meeting%20with%20Chairman%20Neil%20Chatterjee>
Purpose of Meeting (Detailed Description): Would like to meet with the Chairman to discuss reliability and resilience, as well as broad pipeline issues.
EA Contact: Susan Tackish, 202-682-8502 or tackishs@api.org <mailto:tackishs@api.org>
Is this matter before the Commission? Yes
Proposed Date for Meeting: before year-end
Alternate Date for Meeting:
Estimate of the Number of people attending: 3

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Buchalter

# Comments on Draft Green Book by the Cogeneration Association of California

## INTRODUCTION AND SUMMARY

The Cogeneration Association of California (CAC) provides these comments and proposals for refinement to the Draft Green Book issued in May 2018. Parties like CAC, with its existing, efficient, combined heat and power (CHP) resources, have been anxiously awaiting the Green Book in hopes of refinements and progress to a transparent, open and successful energy market. While the Green Book presents a host of facts and questions, after a year's effort, there is disappointment. That disappointment is in the lack of action that is sorely needed to address specific market sectors, like those facilities relying upon the CPUC's Qualifying Facility and Combined Heat and Power Program,[1] to see a viable commercial path forward.[2]

CAC appreciates the effort and detail of the Green Book; CAC, like other parties seeking market choice and direction, needs solutions. To have taken a year of analysis, without framing preferred and needed solutions presents continuing challenges to all existing assets that have served, and seek to continue to serve, California industry and electric consumers.

Troublesomely, the Green Book reflects an underlying theme of restraining or recapturing a centralized, command and control regulatory structure. The analysis acknowledges that many customers, through technology or retail options, are already making energy service choices that cannot be stopped. Yet the status quo would further restrain, either operationally or economically, remaining utility customers from exercising choice for fear of "cost shifts" or other loss of executive protective privilege. Supporting a gentle and reasonable economic

---

[1] The Qualifying Facility and Combined Heat and Power Program Settlement Agreement (CHP Settlement or Settlement); Decision Adopting Proposed Settlement, D.10-12-035, A.08-11-001 (December 21, 2010), as modified by D.11-03-051 and D.11-07-010, available at http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/128624.pdf. Other CPUC Decisions addressing subsequent modifications to the Settlement conditions include D.15-06-028 and D.15-11-046.

FERC considered the Settlement as part of its evaluation of PURPA 210(m) conditions in Pacific Gas and Elec. Co., 135 FERC ¶ 61,234 (2011).

[2] CAC for the purposes of this filing represents the existing, efficient combined heat and power and cogeneration and related Utility Prescheduled Facility (UPF) operation interests of Midway Sunset Cogeneration Company and Watson Cogeneration Company. UPF operations provide both Resource Adequacy and Flexible Capacity benefits for the grid. References to existing CHP in this pleading include the associated UPF operations.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



transition is of course an objective, but not at the loss of affordability, reliability or benefits to California provided by the State's industrial and manufacturing customers. At some point a loss of customers is not a "cost shift" under the concept of a regulated rate-of-return based monopoly structure, but a "revenue loss" faced in a fair and competitive market for services. The Green Book should embrace the concept that the time is long overdue for this transition to be planned and adopted.

The Green Book recognizes the need to optimize the rapidly evolving energy market in California, and to impose some structure to ensure this evolution maximizes customer choice, while meeting seemingly competing objectives of affordability, optimizing reliance on carbon to reduce greenhouse gas emissions and reliability.

The Commission's Green Book analysis should recognize and strive to obtain the foundational attributes of a viable energy market. These attributes are and have been undeniably absent as California proclaimed its hybrid energy "market" from the 2000-2001 Energy Crisis. A viable energy market sends price signals that are sufficient to retain existing, efficient resources, and to incent the development of incrementally efficient resources. The economy energy market reflected by the CAISO day ahead market does neither of these things. As a demonstration of this fact, one can simply review the "Terminated Facilities" pages from the March 29, 2018 CEC Final 2017 Integrated Energy Policy Report (a copy of these pages is attached). California's "policy" of support for existing, efficient CHP resources is in full arrest, as evidenced by this recent record. Absent proactive and immediate action, the stated objectives of the Green Book will be undermined, certainly with regard to CHP assets.

The lack of action on this specific segment of the energy generation industry is reflective of the concerns expressed in the Green Book – we have no executed plan and the risk of a crisis is upon us. This boom or bust "market regulation" is a greater risk to electric customers who seek stability and predictability in rates as a value, second only to reliability. Perhaps the Green Book should take a lesson from the successful deregulation of the gas industry in the 1990s, where utilities were removed from gas procurement for industrial customers. For electric Customer Choice options, removing the investor owned utilities from the electric procurement role for industrial customers should be strongly considered.

**Proposed Actions to Address Limited Existing, Efficient CHP Retention in an Uncertain Near-Term Future "Market"**

These comments recommend action items for the next step of the Green Book process. The action items urging adoption of self-wheeling and establishing a program for short term extensions of existing CHP contracts are time sensitive matters that warrant prompt, "first step" action. Other noted action items are near term steps that are needed to establish meaningful

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



customer choice options for industrial operations. Amongst the array of thoughts (not solutions) offered by the Green Book, the following action items should be incorporated:

- The optimization of customer choice must acknowledge the existence of a significant fleet of industrial cogeneration. These facilities were sought after and solicited by the first Governor Brown administration as a means to avoid the utility plan in the mid-1980s to develop a series of nuclear power plants along the coast, and a string of coal generation facilities through the length of the San Joaquin Valley. Industry answered the call, placed its capital investment in the State and developed these resources to optimize the use of natural gas in the production of both electricity and industrial thermal energy. The use of cogeneration advances the State's goal of decarbonization in reducing the GHG emissions attributable to the production of thermal and electrical energy required for industrial and manufacturing operations. The State must recognize that these industrial products will continue to be needed and that cogeneration contributes to their production using the most energy- and carbon-efficient means. The Customer Choice Project should provide the structure at the very least to retain existing, efficient CHP operations to facilitate transition to the hoped-for 2030 grid and to maximize use of the energy produced by these facilities.

- Individual customers with customer generation facilities as well as industrial load operations should finally be permitted to self-wheel industrial-produced power not only to the uneconomic CAISO market, but to meet that customer's needs wherever located on the grid. Wheeling customers would continue to support the grid by relying upon existing wires at just and reasonable rates. This is one of two "first step" actions the Commission should immediately undertake for industrial operations.

- Expand the option for industrial customers to Direct Access services. It is long past time to preclude the option of customer choice through an expanded Direct Access program for industrial customers, particularly those with customer generation. This may be simply a theme with a different melody to the self-wheeling concept above or the industrial class Load Serving Entity structure below, but it should be an option to address a long standing bar to customer choice for industry.

- An industrial class of willing customers who elect to withdraw from utility service, who will not seek provider of last resort obligations from existing utilities, and will serve industrial loads with industrial generation procured, developed or operated should be a retail choice option. In the near-term, industrial customers with load and resource facilities would benefit from being able to self-provide and schedule electricity to serve their needs. Midway Sunset Cogeneration Company, a CHP facility, has been a scheduling coordinator under the CAISO tariff since 2002. Entities like Midway Sunset

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



Cogen are ready and able to provide such compliant services to industry under this program. Industrial customers under this option must be able to contract for a supply of electricity, as well as load-following services, given varying demands for electricity. These customers would continue to support the grid by relying on existing wires at just and reasonable rates.

- Expand the options for delivery of electric power from cogeneration facilities under Public Utility Code §218(b). This 1980s legislation was designed to severely restrict the delivery or sale of electricity from cogeneration facilities to protect the monopoly status quo for the State's utilities. The now-dated statute prohibits sales of power from cogenerators to no more than two physically adjacent properties. Modernizing this statutory limit to permit a geographic option for a potential market, to say within 10 miles of the cogenerator would provide a more flexible market option for the use of these resources.

- Do not adopt any action that would expand Commission jurisdiction or oversight to generation or operations on industrial or manufacturing sites – so called "behind-the-meter" operations. The Green Book muses on the following question – "*should there be a state entity that provides basic customer protections to customer of services that are either behind the meter or served by entities not historically under the jurisdiction of the CPUC.*"[3] For industrial and manufacturing customers who have or will rely upon customer generation or other technology to address loads and resources of private industry, the unequivocal answer to this question is ***no***. Among other considerations, PURPA regulations preclude CPUC regulation of CHP operations under State regulation. *See*, 18 CFR §292.602, state law exemptions from rates; and 18 CFR §292.101(B)(5) "*rate means any price, rate, charge, or classification made, demanded, observed or received with respect to the sale or purchase of electric energy or capacity, or any rule, regulation, or practice respecting any such rate, charge, or classification, and any contract pertaining to the sale or purchase of electric energy or capacity.*"

- Finally, one apparent truth from the Green Book is that the Commission is currently devoid of answers or solutions to immediately address ongoing market transitions of Customer Choice. The lack of a plan gives rise to the risk of a crisis and the loss of the singularly most important objective of electric service – reliability. Given regulatory uncertainty, market uncertainty, and the service transitions that are occurring without regulatory oversight or a plan, the actions in such situations are to sustain the status quo. CAC has proposed an option for the Commission to address uncertainty in policies,

---

[3] Green Book at p. 6.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



procurement and transitions, by adopting a most traditional solution – a short term standstill agreement, or in this case the extension of existing agreements. With respect to existing CHP facilities, Commission IRP Staff assumed for modeling, without any basis of support at all, that these facilities will continue to operate at least through 2030.[4] The only way to assure that outcome is to provide for an extension of existing, recently approved, CHP contracts as elected by the CHP facility for a period up to five years in length. This proposal is presented in greater detail herein. This is the second "first step" action the Commission should immediately undertake for industrial operations.

**Need to Optimize and Maximize the Use of Electricity from Industrial Self-Generation Operations**

Cogeneration improves the fuel efficiency of industrial processes. Industries that require high heat or steam for their production processes can also sequentially use the heat from that thermal production to generate electricity (topping cycle CHP). Similarly, industries that generate waste heat in their production, such as cement manufacturing, can use that waste heat to generate electricity, rather than exhausting it to the atmosphere (bottoming cycle CHP, with zero GHG emissions allocated to electric generation).

There are a number of existing, efficient cogeneration facilities operating in the State. Under the QF/CHP Settlement, most of these facilities sell their electricity to their interconnected utilities under contracts that will expire shortly, *i.e.*, within the next few years. Without an established market or secure purchaser to consume available export electricity, CHP facilities can no longer produce efficiently the thermal energy essential to the industrial operation provided by the cogeneration process. Instead, to ensure a reliable source of thermal energy, the industrial customer will install natural gas boilers and buy their electricity from the utilities, resulting in a net increase in fuel consumed to produce thermal and electric energy from separate generation resources. This abandonment of existing, proven, reliable efficiencies is contrary to the State's goals, and the framework for Customer Choice must provide a market for the electricity produced by these resources.

While the State may have a goal to reduce reliance on fossil fuels, particularly for electric generation, such a goal will not be achieved in the near term, *i.e.*, before 2030 absent severe economic dislocation. It will be necessary for some time to use fossil fuels to generate the high-temperature thermal energy for industries, such as refining, chemical production, food processing, hospital and university operations and many other industrial and manufacturing processes. Similarly, the elimination of fossil fuels for transportation cannot be quickly achieved, and the refineries to produce jet fuel and automotive fuel will have to remain in

[4] The CAISO local capacity assessment makes similar assumptions.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



operation to serve the State's approximately 26 million light duty and passenger vehicles. Even assuming the most optimistic penetration of electric vehicles in the transportation market, there will be over 20 million California vehicles in 2030 requiring traditional fuels. Ensuring that such refineries operate in the most cost- and fuel-efficient manner promotes California's decarbonization goals.

**Self-Wheeling or the Expansion of Industrial Direct Access or a New California Industrial Customer Load Serving Entity Enterprise**

The draft Green Book is founded on the basic concept that the utilities operate the wires in a competitively neutral manner, and customers select energy sources utilizing those wires for delivery. One of the many variants in allowing complete freedom in the use of wires is allowing customers the option to distribute energy and serve loads among multiple facilities. If the utility provides the wires for whatever energy resource a customer may choose, then a truly neutral distribution system would allow customers to use the wires to re-route or dispatch energy to multiple uses. This would include allowing a customer with self-generation at one site to redistribute its excess energy to another site, using the utility wires. It would also allow flexibility in scheduling, so that a customer could schedule energy from one or multiple sources to multiple end-uses as their energy demands vary. Immediately facilitating self-wheeling for industrial customers with customer generation should be embraced by the Commission as a first step in the evolution of a Customer Choice market.

Other refinements on this same theme would include the expansion, at least for industrial customers, of direct access options to permit the sale of currently failing generation resources that have no options to a viable market.

Another option could include the establishment of an industrial customer Load Serving Entity enterprise. This entity could take advantage of the existing industrial generation, gather willing industrial loads and provide the scheduling services and interface with the CAISO to meet scheduling coordinator obligations. This option could include conditions for participation in the industrial group, including the waiver of provider of last resort obligations for the serving utility.

There is precedent for these types of alternatives. The Green Book makes reference to the NY REV model that contemplates resources such as a community solar power plant and a local CHP plant with the system distributing this energy to multiple customers. A legal barrier in California would be the existing Public Utilities Code §218(b) that restricts the sale or delivery of CHP power to more than two immediately adjacent properties – thereby excluding a "community." The contemplation of the NY REV model would be to expand the ability to rely on distributed generation resources. But that reliance should not be limited to a residential micro

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



grid. With existing, efficient, California CHP currently capable of providing power to other industrial customers, there is an opportunity not to waste an existing State investment. That CHP investment is at material risk in the current California "energy market." Reconsideration of a legal bar to the use and distribution of that investment to benefit both the generator and other industrial customers is warranted as a Customer Choice option. Section 218(b) was established at a time to preserve the monopoly status quo of utility service to all customers. The dated provision has no place in a Customer Choice world, and the Commission, to address Customer Choice options, should include the revision or elimination of this restriction for industrial operations, while preserving the exemption from utility regulation.

**The Most Critical Action for Now: Call Time-Out on the Extermination and Loss of Existing CHP Resources**

The singularly most important action item the Commission should undertake to foster Customer Choice and to preserve the status quo option to reach customer choice objectives is to establish a program for the short term preservation of existing CHP assets. In short, the Commission in the Customer Choice proceeding should address and IRP issue and adopt a 5-year CHP "market" stabilization plan while the CPUC "figures things out."

Following is a summary of key points raised with the Commission in CAC's January 17, 2018 comments to the Decision of Commissioner Randolph in the IRP proceeding:[5]

1. Staff's Reference Plan is predicated on the retention of certain existing, efficient resources, including CHP, through 2030, and the plan's incremental procurement design assumes the retention of these existing resources.

2. There is no established California program for the retention of greater than 20 MW CHP resources after the expiration of the CHP Settlement, yet federal law (PURPA[6]) remains as an obligation for the retention of existing and development of new California CHP resources.

---

[5] R.16-02-007 OIR to Develop an Electricity Integrated Resource Planning Framework and to Coordinate and Refine Long-Term Procurement Planning Requirements, *Comments of the Cogeneration Association of California on the Proposed Decision of Commissioner Randolph,* January 17, 2018. A copy of the CAC filing is attached.

[6] Public Utility Regulatory Policies Act, 16 USC § 2601, *et. seq.*; *see also*, the recent judicial holding on the applicability of PURPA to Commission actions, *Winding Creek Solar LLC v. Michael Peevey, et al.*; US District Court for the Northern District of California; Case 13-cv-04934-JD, dated December 6, 2017.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



3. CHP is not, and should not be considered, a natural gas plant in the context of the Staff's IRP modeling [but it remains so considered].

4. Termination of existing, efficient CHP facilities will likely result in increased GHG emissions as industry replaces cogeneration with industrial boilers and the existing grid remains in transition. This means increased industrial loads resulting from terminated CHP will be met, at least in the short term, with increased natural gas generation.

5. Time is of the essence. Planning decisions for major industry relying on CHP cannot await 2018 or 2019 in hopes there will be a solution in 2020. Industrial facilities are making long term, irrevocable decisions now about thermal and electric power supply for 2020 and beyond.

CAC's proposed solution in the IRP Docket:

CAC presented the factual and legal case for the Commission to take action to fulfill Staff's modeling assumption that existing, efficient CHP resources would remain in the base case through 2030. As demonstrated, there is no program beyond 2020 to provide for CHP resources to secure power purchase agreements, and the CAISO day ahead market will not sustain these resources. The IOUs have expressed to the Energy Division and to CHP parties that there is no CHP Settlement program post 2020. In light of that fact, CAC sought Commission action to provide a reasonable extension of existing PPAs to bridge the IRP analysis, decision and implementation gap post 2020.

No action has been publicly announced on this proposal in any CPUC forum to address this market shortfall for existing CHP resources.

**CONCLUSION**

CAC appreciates the opportunity to address the Commission's consideration of Customer Choice options. CHP parties seek timely, immediate action by the Commission on this critical issue, particularly for the preservation of existing, efficient CHP resources. CHP provides a contribution to a balanced and diversified California portfolio of resources needed for reliability and affordability as the State transitions to the optimization of carbon use. As noted herein, the Commission should avoid any action to impose CPUC or State oversight to private industrial and manufacturing operations. Most importantly, the Commission should proactively look for solutions, embracing the transition that is happening "without a plan."

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Table 8:**

*Actual and Planned Retirements of Natural Gas and Nuclear Power Plants in California and PG&E Hydro Facilities Under Evaluation (2010–2029)*

| FACILITY & UNITS | FUEL TYPE | CAPACITY (MW) | RETIREMENT DATE | REASON |
|---|---|---|---|---|
| ACTUAL | | | | |
| Humboldt Bay 1, 2 | nat. gas | 135 | 9/30/2010 | OTC compliance |
| South Bay | nat. gas | 296 | 12/31/2010 | OTC compliance |
| Potrero 3 | nat. gas | 207 | 2/8/2011 | OTC compliance |
| Texaco Exploration Cogeneration | nat. gas | 19 | 3/14/2011 | Economic retirement |
| Wellhead Gates | nat. gas | 47 | 12/31/2011 | Economic retirement |
| El Centro 3 | nat. gas | 50 | 12/31/2011 | Economic retirement |
| JRW Associates Cogeneration | nat. gas | 10 | 12/31/2011 | Economic retirement |
| United Cogeneration | nat. gas | 31 | 3/31/2012 | Economic retirement |
| Huntington Beach 3, 4 | nat. gas | 452 | 11/1/2012 | OTC compliance |
| Escondido Energy Center | nat. gas | 44 | 12/31/2012 | Economic retirement |
| Los Esteros Critical Energy | nat. gas | 192 | 12/31/2012 | Economic retirement |
| Contra Costa 6, 7 | nat. gas | 674 | 4/30/2013 | Retired 4/30/2013 |
| Wheelabrator Lassen Cogeneration | nat. gas | 39 | 5/21/2013 | Economic retirement |
| San Onofre 2, 3 | nuclear | 2,246 | 6/7/2013 | Economic retirement |
| Haynes 5, 6 | nat. gas | 535 | 6/1/2013 | OTC compliance; replaced as air-cooled |
| El Segundo 3 | nat. gas | 335 | 7/27/2013 | OTC compliance; replaced as air-cooled |
| Lake Shore Mojave Cogeneration | nat. gas | 55 | 8/5/2013 | Economic retirement |
| Morro Bay 1–4 | nat. gas | 912 | 2/5/2014 | OTC compliance |
| North Midway Cogeneration Plant | nat. gas | 11 | 5/9/2014 | Economic retirement |



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000019

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

| FACILITY & UNITS | FUEL TYPE | CAPACITY (MW) | RETIREMENT DATE | REASON |
|---|---|---|---|---|
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] | [redacted] | [redacted] |
| Oildale Cogeneration | nat. gas | 40 | 1/5/2016 | Economic retirement |
| Moss Landing 6, 7 | nat. gas | 1,510 | 12/31/2016 | OTC compliance |
| El Cajon | nat. gas | 13 | 12/31/2016 | Economic retirement |
| Mid-Set Cogeneration | nat. gas | 39 | 12/31/2016 | Economic retirement |
| Miramar | nat. gas | 33 | 12/31/2016 | Economic retirement |
| Pittsburg 5, 6, 7 | nat. gas | 1,307 | 12/31/2016 | OTC compliance |
| Encina 1 | nat. gas | 106 | 4/18/2017 | OTC compliance |
| **PLANNED** | | | | |
| San Joaquin Cogeneration | nat. gas | 48 | 6/27/2017 | Economic retirement |
| Mandalay 1, 2, 3 | nat. gas | 565 | 2/7/2018 | Economic retirement |
| Encina 2, 3, 4, 5 | nat. gas | 840 | 12/31/2018 | OTC compliance |
| Metcalf 1, 2, 3 | nat. gas | 565 | TBD 2018 | Economic retirement |
| Feather River | nat. gas | 48 | TBD 2018 | Economic retirement |
| Yuba City | nat. gas | 48 | TBD 2018 | Economic retirement |
| Redondo 7 | nat. gas | 493 | 10/1/2019 | OTC compliance |
| Huntington Beach 1 | nat. gas | 226 | 12/31/2019 | OTC compliance; being replaced as air-cooled |



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000020

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

| FACILITY & UNITS | FUEL TYPE | CAPACITY (MW) | RETIREMENT DATE | REASON |
|---|---|---|---|---|
| Alamitos 1, 2, 5 | nat. gas | 848 | 12/31/2019 | OTC compliance; being replaced as air-cooled |
| Moss Landing 1, 2 | nat. gas | 1,020 | 12/31/2020 | OTC compliance deadline |
| Huntington Beach 2 | nat. gas | 226 | 12/31/2020 | OTC compliance deadline |
| Redondo 5, 6, 8 | nat. gas | 850 | 12/31/2020 | OTC compliance deadline |
| Alamitos 3, 4, 6 | nat. gas | 1,163 | 12/31/2020 | OTC compliance deadline |
| Ormond Beach 1, 2 | nat. gas | 1,516 | 12/31/2020 | OTC compliance deadline |
| Diablo Canyon 1 | nat. gas | 1,120 | 11/2/2024 | Owner decision to close; forego federal relicensing |
| Scattergood 1, 2 | nat. gas | 367 | 12/31/2024 | OTC compliance; plans to replace as air-cooled |
| Diablo Canyon 2 | nuclear | 1,120 | 8/26/2025 | Owner decision to close; forego federal relicensing |
| Haynes 1, 2 | nat. gas | 444 | 12/31/2025 | OTC compliance; plans to replace as air-cooled |
| Haynes 8 | nat. gas | 575 | 12/31/2028 | OTC compliance; plans to replace as air-cooled |
| Harbor 5 | nat. gas | 229 | 12/31/2029 | OTC compliance; plans to replace as air-cooled |
| **Total Retirements** | | **23,285** | | |
| DeSabla-Centerville | hydro | 26 | TBD | Facility owner has not announced retirement plans |
| Narrows | hydro | 12 | TBD | Facility owner has not announced retirement plans |
| Potter Valley | hydro | 9 | TBD | Facility owner has not announced retirement plans |
| **Hydro Facilities Under Evaluation** | | **47** | | |

Source: Energy Commission, Tracking Progress, Once-Through Cooling Phase-Out, 3/8/2017.



AMERICAN OVERSIGHT
EXT-(UCS)-18-2615-J-000021

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**BEFORE THE PUBLIC UTILITIES COMMISSION**
**OF THE STATE OF CALIFORNIA**

| | |
|---|---|
| Order Instituting Rulemaking to Develop an Electricity Integrated Resource Planning Framework and to Coordinate and Refine Long-Term Procurement Planning Requirements | R.16-02-007<br>(Filed February 19, 2016) |

# COMMENTS OF THE COGENERATION ASSOCIATION OF CALIFORNIA ON THE PROPOSED DECISION OF COMMISSIONER RANDOLPH

Michael Alcantar
Alcantar & Kahl LLP
345 California Street
Suite 2450
San Francisco, CA 94104
415.421.4143 office
415.989.1263 fax
mpa@a-klaw.com

Executive Director and Counsel to
the Cogeneration Association of California

January 17, 2018

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**SUBJECT INDEX**


I. INTRODUCTION AND SUMMARY ..... 1

II. THE PD FAILS TO ADDRESS FACTUAL, TECHNICAL AND LEGAL ISSUES TO SUSTAIN EXISTING, EFFICIENT CHP RESOURCES IN THE IRP REFERENCE PLAN ..... 5

A. Staff's Reference Plan Depends upon the Retention of Existing Efficient CHP Resources ..... 5

B. The CPUC QF/CHP Program Settlement Terminates in 2020; What California Program Will Sustain Existing CHP Resources to Meet Federal Obligations? ..... 5

C. The Commission and IRP Staff Need to Recognize and Model the Distinctions between Existing CHP and Natural Gas Plants ..... 7

D. Termination of Existing Efficient CHP Facilities Will Undermine the Commission's SB 350 Objectives ..... 9

E. Time is of the Essence for Existing CHP Retention; the Commission Needs to Act Now ..... 11

III. CONCLUSION ..... 13




AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

## TABLE OF AUTHORITIES

**Statutes**
Public Utility Regulatory Policies Act, 16 U.S.C. § 2601.....4

**Cases**
*Winding Creek Solar LLC v. Michael Peevey, et al.*; US District Court for the Northern District of California, Case 13-cv-04934-JD .....4, 6

**Commission Decisions**
*Decision Adopting Proposed Settlement*, D.10-12-035, A.08-11-001 (December 21, 2010), as modified by D.11-03-051 and D.11-07-010.....2, 6



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**BEFORE THE PUBLIC UTILITIES COMMISSION**
**OF THE STATE OF CALIFORNIA**

| | |
|---|---|
| Order Instituting Rulemaking to Develop an Electricity Integrated Resource Planning Framework and to Coordinate and Refine Long-Term Procurement Planning Requirements | R.16-02-007 (Filed February 19, 2016) |

# COMMENTS OF THE COGENERATION ASSOCIATION OF CALIFORNIA ON THE PROPOSED DECISION OF COMMISSIONER RANDOLPH

The Cogeneration Association of California[1] (CAC) files these comments on the Proposed Decision (PD) of Commissioner Randolph pursuant to Rule 14.3 of the Commission's Rules of Practice and Procedure.

## I. INTRODUCTION AND SUMMARY

CAC commends and appreciates the effort of the Assigned Commissioner and Commission Staff for endeavoring to address many issues in the extensive PD. To do so required sorting through: (a) 46 sets of opening comments with almost 1,200 pages of detailed opening positions; and, (b) 22 sets of reply comments with over 300 pages of additional views. Collectively, these wide-ranging stakeholder comments expressed multiple concerns and reservations about the Staff's proposed Reference Plan and modeling assumptions.

[1] CAC for the purposes of this filing represents the existing, efficient combined heat and power and cogeneration and related Utility Prescheduled Facility (UPF) operation interests of Midway Sunset Cogeneration Company and Watson Cogeneration Company. References to existing CHP in this pleading include the associated related UPF operations.

AMERICAN OVERSIGHT

Notwithstanding this effort, the PD has effectively ignored a critical and unsubstantiated assumption from Staff regarding the retention of existing generation resources, specifically existing, efficient CHP resources.[2] The Commission can and should remedy this failing now in this proceeding, and to be timely, in this PD.

Staff's workshop presentations and express statements unequivocally established that the Reference Plan for the IRP is focused upon ***incremental*** resource additions to meet SB 350 goals. Staff has also acknowledged that modelling assumptions included, among other things, the retention of generation capacity from existing, efficient combined heat and power (CHP) resources. Watson Cogeneration Company and Midway Sunset Cogeneration Company fall into this class of generation resources.

In comments filed with the Commission, CAC demonstrated several factual, technical and legal issues that compel actions to establish a program that will reasonably sustain these resources, as assumed by Staff's model. These issues included: (1) the IOUs' express position that there is no greater-than-20MW CHP retention program beyond the 2020 termination of the CHP Settlement;[3] and (2) the LTPP/IRP proceeding is the proper forum to address

---

[2] CHP facilities refer not only to cogeneration/combined heat and power operations but also associated Utility Prescheduled Facility facilities supporting industrial and manufacturing operations under contracts approved by the Commission.

[3] The Qualifying Facility and Combined Heat and Power Program Settlement Agreement (CHP Settlement or Settlement); *Decision Adopting Proposed Settlement*, D.10-12-035, A.08-11-001 (December 21, 2010), as modified by D.11-03-051 and D.11-07-010, available at http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/128624.pdf. Other CPUC Decisions addressing subsequent modifications to the Settlement conditions include D.15-06-028 and D.15-11-046. *See also*, FERC's action on the



AMERICAN OVERSIGHT

post-CHP Settlement issues under PURPA. The extent of the PD's recognition of these specific CHP issues is captured in two passages in the 131-page decision:

- *For CHP resources, CAC argues that the Commission should assume a five-year extension of the existing contracts. The IOUs, in their reply comments, argue against this suggestion.*[4]

- *For the current round of analysis, we are satisfied that Commission staff has utilized the best available assumptions and functionality, and has run enough sensitivity analyses that we can evaluate the impact of changes in certain assumptions to inform our decisionmaking and IRP framework.*[5]

From a CHP perspective, the Commission's inaction related to the retention of existing CHP resources is, of course, disappointing and concerning. There is a truth that the consequence of inaction often means action. In this instance, the Commission's failure to address a CHP retention program has adverse consequences not simply for the CHP projects, but for attaining the Commission's SB 350 objectives. Industrial hosts that rely on CHP will be left with the option to replace existing resources with natural gas industrial boilers for thermal energy. The grid in the short term will most likely rely on emitting

---

Settlement as part of its evaluation of PURPA 210(m) conditions in *Pacific Gas and Elec. Co.*, 135 FERC ¶ 61,234 (2011).

[4] PD at 38. To be precise, CAC did not argue that the Commission assume a five-year extension of existing contracts. What CAC presented was the factual and legal case for the Commission taking action to fulfill Staff's modelling assumption that existing, efficient CHP resources would remain in the base case through 2030. As pointedly demonstrated, there is no program beyond 2020 to provide for CHP resources to secure power purchase agreements, and the CAISO day ahead market will not sustain these resources. The IOUs have expressed to the Energy Division and to CHP parties that there is no CHP Settlement program post 2020. In light of that fact, CAC sought Commission action to provide a reasonable extension of existing PPAs to bridge the IRP analysis, decision and implementation gap post 2020.

[5] PD at 43.



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000027

resources to accommodate the increased load from industrial energy demand resulting from the loss of CHP electric generation. These consequences undermine the very assumptions Staff has relied upon to support its Reference Plan for incremental IRP resources, *i.e.*, sustaining the presumed availability of existing CHP resources.

The following is an outline summary of factual, technical and legal issues that compel revision to the PD are addressed in these comments:

1. Staff's Reference Plan is predicated on the retention of certain existing, efficient resources, including CHP, and the plan's incremental procurement design assume the retention of these resources.

2. There is no established California program for the retention of greater than 20 MW CHP resources after the expiration of the CHP Settlement, yet federal law (PURPA[6]) remains as an obligation for the retention of existing and development of new California CHP resources.

3. CHP is not, and should not be considered, a natural gas plant in the context of the staff's IRP modelling.

4. Termination of existing, efficient CHP facilities will likely result in increased GHG emissions as industry replaces cogeneration with industrial boilers and the existing grid remains in transition. This means increased industrial loads resulting from terminated CHP will be met, at least in the short term, with increased natural gas generation.

5. Time is of the essence. Planning decisions for major industry relying on CHP cannot await 2018 or 2019 in hopes there will be a solution in 2020 and beyond. Industrial facilities are making long term, irrevocable decisions now about thermal and electric power supply for 2020 and beyond.

---

[6] Public Utility Regulatory Policies Act, 16 U.S.C. § 2601, *et. seq.*; *see also*, the recent judicial holding on the applicability of PURPA to Commission actions, *Winding Creek Solar LLC v. Michael Peevey, et al.*; US District Court for the Northern District of California; Case 13-cv-04934-JD, dated December 6, 2017.



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000028

## II. THE PD FAILS TO ADDRESS FACTUAL, TECHNICAL AND LEGAL ISSUES TO SUSTAIN EXISTING, EFFICIENT CHP RESOURCES IN THE IRP REFERENCE PLAN

### A. Staff's Reference Plan Depends Upon the Retention of Existing Efficient CHP Resources

The Staff's IRP Reference Plan presents a path for procurement in anticipation of 2030 that is ***incremental*** to assumptions relative to existing, efficient CHP resources.[7] This assumption, particularly for existing, efficient CHP resources, is rather critical. The Commission's action on this assumption will either send the existing CHP operators a message supporting retention, or a message that there is no program contemplated to sustain their operations through 2030. That message will prompt business decisions and actions either consistent with or directly contrary to the Reference Plan assumptions adopted by the PD. Absent revision, the PD is factually and technically inconsistent with the assumptions underlying the Staff's Reference Plan with regard to the retention of existing, efficient CHP resources.

### B. The CPUC QF/CHP Program Settlement Terminates in 2020; What California Program Will Sustain Existing CHP Resources to Meet Federal Obligations?

The CPUC QF/CHP Program Settlement will expire by its terms in 2020. The Settlement expressly identifies an objective that it "[e]*stablishes a platform for a State CHP Program with identified features through 2020, and sets a*

---

[7] Staff's slide deck entitled "All-Party Meeting on the Proposed Integrated Resource Planning Process and Reference System Plan," November 2, 2017, at 11: "*Note: all resources shown in this chart are selected by RESOLVE and* ***are in addition to baseline resources***" and at 32, "*All cases studied assumed that most existing gas resources continued to be available.*"



AMERICAN OVERSIGHT

*framework for a sustained State CHP Program beyond 2020.*"[8] CAC, other CHP parties to the Settlement and the CPUC Energy Division have been advised expressly by the IOU parties that there is no such program beyond 2020. This fact leaves open to the Commission what actions it will take to address this void in policy over California's existing CHP resources.

CAC remains confounded by the IOU responses and objections on this subject, since there is no Settlement or CHP retention program, according to the IOUs, post 2020. CAC's comments do not seek an extension of the Settlement, but an extension of existing contracts approved by the Commission as a reasonable, available and timely means to sustain the Staff's Reference Plan assumptions.

The Commission and the state of California still have responsibilities under federal law, PURPA. The recent *Winding Creek Solar* case should be a clear reminder to the Commission of this point.[9] CHP parties also have the option of seeking FERC reconsideration of the must-take and avoided cost pricing options under PURPA §210(m) in the event of non-action by the Commission for the post-2020 period.

All of these litigated or contested actions are suboptimal for CHP and CPUC interests. These actions can and should be avoided, and the Commission, in the IRP proceeding holds the jurisdictional keys to secure a simple and reasonable program, consistent with IRP assumptions. Simply

---

[8] QF/CHP Settlement §1.2.2.9.

[9] *Winding Creek Solar*, supra note 6.



AMERICAN OVERSIGHT

extending existing, recently approved contracts of existing CHP resources for a 5-year term is consistent with a reasonable exercise of the Commission's prerogative. Why a 5-year term? Because that this the typical cycle of major maintenance overhauls to sustain the reliability of the generation equipment (just like any combined cycle or combustion turbine). That 5-year term will provide the assurances to the operations that they will be financially viable to perform the necessary maintenance and recover those costs. The option to extend could be provided for CHP resources for the period up to but not exceeding 2030 to be consistent with the Staff's modeling assumptions, and be triggered by a formal request by the CHP contract holder with the IOU. The request would be subject to an advice letter filing with the Commission and resolution.

### C. The Commission and IRP Staff Need to Recognize and Model the Distinctions between Existing CHP and Natural Gas Plants

While CHP facilities may be fueled by natural gas, they should be distinguished and modelled differently from what Commission Staff has modeled as "natural gas plants." To quickly review the basics of cogeneration, the system can either be a topping cycle or a bottoming cycle operation.

A bottoming cycle captures waste heat, typically from an industrial process, and produces power from the waste heat. This bottoming cycle operation is attributed with no greenhouse gas emissions since the emissions are attributable to the industrial process.

Alternatively, a topping cycle operation sequentially burns a single fuel, often natural gas, first in a turbine to produce electric power, and then uses the heat from the turbine combustion to produce thermal energy, typically process



AMERICAN OVERSIGHT

steam. The topping cycle operations, particularly for larger capacity projects, are thermally matched to meet high steam demands, and the byproduct of that process produces base load, highly reliable, firm electric power. That "excess" electric power is made available to the grid, and under California CHP contracts the provider is only paid upon meeting strict and exacting delivery obligations.

These projects are industrial and manufacturing steam plants. They were installed as an efficiency and environmentally beneficial option to reliance on industrial boilers for the production of thermal power using a single fuel. By combining the production of thermal power with the production of electric power, the benefits of cogeneration or CHP are made available to the grid, to consumers, and to communities with CHP operations. The result has been lower overall emissions, high efficiency, and a sustained industrial/manufacturing base from combined heat and power as opposed to separate heat and power.

In contrast, a natural gas plant burns a single fuel to produce a single product, electric power. The natural gas plant does not support the thermal demands of an industrial operation, or replace the industrial need for a boiler. When the boiler is needed for all hours or a material number of hours in a year, the efficiency and emissions profile of a CHP facility provides benefits in comparison to separate heat and power. In short, CHP significantly differs from natural gas plants; not only in operational characteristics, but also with respect to the role of electric production.

Staff modeled CHP in a similar manner as Natural Gas plant in the RESOLVE model simulations, yet Staff also acknowledges the differing attributes



AMERICAN OVERSIGHT

and considerations for the CHP operations and products. From an environmental and efficiency standpoint, CHP, as an option to separate heat and power (an industrial boiler plus electric generation operations) should be distinguished from natural gas plants.

Specifically, PD Conclusion of Law 15 and Ordering Paragraph 7 should be modified to recognize and distinguish CHP from natural gas plants. Moreover, the going-forward Staff modelling should recognize and distinguish these resources.

> Finally, because of the clear nexus between natural gas generation (as distinguished from CHP operations) and emissions in disadvantaged communities within the electric sector, we will require that any LSE proposing to develop new natural gas resources or re-contract with existing natural gas resources (as distinguished from CHP operations) in their IRP, regardless of whether it is located in a disadvantaged community, make a showing as to why another lower-emitting resource could not meet the need identified.[10]

### D. Termination of Existing Efficient CHP Facilities Will Undermine the Commission's SB 350 Objectives

Not unlike PURPA, SB 350 and actions to implement the law, like those undertaken in the IRP, should seek to optimize the use of fossil fuels to minimize impact on the environment. It would be unwise and uneconomic to risk reliability by terminating existing, efficient CHP resources with a goal towards eliminating all forms of carbon generation. CHP resources are predicated upon the duel use of a carbon fuel for efficiency and environmental benefits. Moreover, they sustain the thermal and electric demands of industrial and manufacturing industries dependent upon base load, firm, 8760 operations.

---

[10] PD at 57; *see* COL 15 and Ordering Paragraph 7.



AMERICAN OVERSIGHT

The PD and the Commission must consider the retention of the benefits of CHP operations as it transitions to 2030. These existing, efficient resources provide material benefits, and their continued operation is assumed by the IRP Reference Plan. Consider the following factors in the event of the termination of these resources:

- A thermal-dependent industrial or manufacturing business will install industrial boilers, most likely utilizing natural gas, to provide thermal energy in order to sustain operations. This means the "elimination" of GHG emissions by terminating CHP resources is illusory, since the business will likely continue operations with more traditional means of thermal generation.
- The terminated CHP operation will no longer provide on-site electric generation to serve the industrial load. Separate electric supply will need to replace the terminated CHP generation. This means there will be higher demand on the supplying utility for both generation and distribution (wires) services.
- As the State trends toward 2030 SB 350 objectives, during the 10 years between 2020 and 2030, the grid will not be carbon free, and generation to serve 8760-hour demand industries will undoubtedly come from some increase in natural gas generation. This likely means an increase, and not a decrease in overall GHG emissions from separate heat and power under the CHP termination option.
- The reliability of service to an industrial customer will depend upon securing firm generation supply, and place greater transmission and distribution strain on the local grid serving the industrial customer.

There will be environmental and efficiency consequences to the choice to retain or terminate CHP resources contrary to SB 350. These are all consequences that can be mitigated or eliminated by the retention of the existing CHP resource for an interim period, up to 2030, while the CPUC IRP direction is resolved, and procurement paths are established. CAC has offered this option to the Commission – an interim extension for existing, efficient CHP contracts -- and it should be adopted in the PD.



AMERICAN OVERSIGHT

### E. Time is of the Essence for Existing CHP Retention; the Commission Need to Act Now

From the perspective of a CHP operation, the PD sets forth a leisurely, and commercially untenable, procurement implementation plan for contracts terminating in the 2020 timeframe. Time is of the essence, and the Commission needs to take action now in this PD.

The PD sets forth the planning and procurement timeline in the introduction. That timeline "...adopts a two-year planning cycle for the Commission to conduct modeling and analysis, set greenhouse gas (GHG) emissions targets, and consider IRP filings from all LSEs. ...At the end of each two-year cycle, the Commission will authorize procurement, where appropriate, that is necessary to occur within the next 1-3 years, to meet the targets and needs identified in the IRP process. The first such procurement authorization, if needed, is anticipated to come near the end of 2018 at the end of the first IRP cycle."[11]

Once again, this passage should apply to ***incremental*** IRP resource additions; however, there is nothing in the PD addressing the impending loss of baseline resources, particularly existing, efficient CHP.

Absent currently unforeseeable regulatory or market tools to sustain operations, existing CHP will face termination due to the failure of the day ahead market to provide revenues to sustain these operations. As noted, timely Commission action is essential. The CHP Settlement terminates in 2020, and

[11] PD at 2.



AMERICAN OVERSIGHT

the IOUs have expressly stated there is no continuing program for CHP resources beyond those with less than 20 MW of capacity.

The PD expressly states that it only anticipates addressing procurement for the two-year window of 2019 and 2020. Accordingly, the loss of existing CHP, in contrast to the Staff's RESOLVE modeling assumptions, is exacerbated by the PD's lack of a solution.

For businesses trying to make informed choices relative to thermal and electric demand and supply options, the issue is far more acute. No business can await long term planning until options are extinguished. Businesses relying on CHP must make a business choice now to be able to permit, develop and construct alternative options for electric and thermal supply in 2020. If business elections are made now to revert to boiler installations, the actions in 2020 will be the assured termination of CHP resources relied upon by Staff's modelling as baseline for the Reference Plan.

There are other consequences to the loss of the existing CHP resource fleet. In addition to the system reliability and inefficient use of existing resources associated with the loss of a large amount of industrial CHP, the RESOLVE model results do not reflect the reliability implications associated with the loss of CHP generation in local reliability areas. The loss of CHP at an industrial facility with a large electric and thermal energy requirement have a compound impact on local reliability.[12]

---

[12] As noted in Section II.D, the loss of existing CHP electric generation serving local off-site electric load will place additional stress on distribution and transmission facilities. These wires will, in the event of termination, be required to deliver more remote system generation to serve the CHP host site requirements and electric load. Moreover, a



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

From an existing CHP resource perspective, the PD is both disappointing and of material concern. Time is of the essence, and failure to promptly and meaningfully address retention of existing generation resources in the face of Staff's assumptions is a troublesome issue for the PD to ignore.

## III. CONCLUSION

The PD fails to take advantage of the opportunity to timely address key and critical timing issues for existing efficient CHP facilities like MSCC and Watson. CAC recommendations adoption of a five year-extension for Commission-approved CHP contracts. This action will provide needed certainty to industrial facilities to sustain existing CHP operations, particularly as the Commission sorts out the IRP path.

For all of the foregoing reasons, the CPUC should institute a program to extend the PPAs of existing, efficient CHP and associated UPF facilities for a period of five-year terms. This measure will establish the needed program stability to retain these resources, but also provide the CHP operator with revenues to support the major maintenance costs that occur every five years.

Respectfully submitted,



Michael Alcantar
Executive Director and Counsel to the
Cogeneration Association of California

January 17, 2018

---

proven, highly reliable source of electric generation will be lost (*e.g.*, large industrial CHP facilities continued to supply emergency electric generation throughout the California energy crisis without payment from the IOUs).



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000037

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

## Appendix A
## Proposed Findings of Fact and Conclusions of Law

New Proposed Finding of Fact 24: The Commission acknowledges that the IRP modelling, and Reference Plans address incremental resource procurement planning, and that there are assumptions related to baseline, existing resources that require actions to assure the sustained availability of those resources for GHG emission and reliability interests.

New Proposed Finding of Fact 25: For IRP modelling and Reference Plans existing CHP, as a baseline resource, is to be considered separate and distinct from natural gas plant electric generation.

New Proposed Finding of Fact 26: Good cause has been shown to address the retention of existing, efficient CHP resources under Commission approved contracts. A five-year extension of such existing CHP contracts is a reasonable and necessary option as the optimal IRP procurement for 2030 is established by the Commission.

Conclusion of Law 15: The Commission should require a showing from any LSE seeking to acquire new or re-contract with existing natural gas resources (as distinguished from CHP operations) as part of its IRP filing, justifying why the need met by such a resource cannot be met by another, lower-emitting resource.

New Conclusion of Law 33: The Commission is obligated under federal law to consider measures to sustain existing efficient CHP resources, and has the authority to permit extensions of existing, approved contracts for such resources.

Modified Ordering Paragraph 7, as presented in Section IIC, above.

New Ordering Paragraph 18: The Commission adopts the proposal to extend for 5-year terms existing contracts previously approved by the Commission for existing, baseline CHP resources as proposed by CAC. Existing CHP contract holders may notify the interconnected or contracting IOU of the desire to extend and IOU shall promptly file an advice letter seeking approval of such extension on the same price and non-price terms as the Commission deems reasonable. Such extensions shall be permitted within the time period between 2020 and 2030, with the initial date of any extension being the termination date of the existing Commission-approved contract.



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Jeff Dennis
**To:** Anthony Pugliese; Travis Fisher
**Subject:** Brattle Report
**Date:** Thursday, July 19, 2018 10:52:38 AM
**Attachments:** Brattle Report Final.pdf

---

Hi Anthony and Travis,

Hope all is well with you both. I wanted to make sure you had a copy of a report that was released today by the Brattle Group, and that has been receiving some press attention today. The Report discusses some of the policy design issues raised by the Department of Energy's Draft Memo outlining a proposal to direct purchases of electricity and capacity from designated coal and nuclear power plants, and presents a range of illustrative estimates of the potential direct cost of implementing a program of mandated purchases to prevent or deter coal and nuclear retirements. As you may have seen in the press clips, the report estimates that those direct costs could be as high as $34 billion annually.

While the report is obviously focused on activities happening outside of the Commission, given how much attention this issue is receiving across the industry, we thought you and the Chairman might find it interesting to review.

I hope you are having a great summer, and I look forward to seeing you soon. As always, feel free to reach out to us if you have questions.

Best,

Jeff

**Jeff Dennis**
General Counsel for Regulatory Affairs
**Advanced Energy Economy**
*The business voice of advanced energy*

Email: jdennis@aee.net
Mobile: [redacted]
Web: www.AEE.net | Twitter: @AEEnet

Use PowerSuite to identify and manage energy policy risks and opportunities. Legislative and Regulatory. State and Federal. One tool. Learn more >

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** IHS Markit Connect
**To:** Travis Fisher
**Subject:** Connect Daily Summary
**Date:** Friday, July 6, 2018 11:57:28 AM

Daily Summary

*The Connect Daily Summary is a standard, curated email notification aggregating all of your updated subscribed content into one daily email. Click here to manage your Connect email notification settings (you may be required to log in).*

## Latest Research

### LNG

Europe Waterborne LNG Trade Report July 5, 2018

Republic of the Congo: Congo-Brazzaville FLNG

IGU World LNG Report - 2018 Edition

### Regional Power, Gas, Coal and Renewables

North America Power Market Fundamentals: Rivalry, May 2018

This email is being sent to travis.fisher@ferc.gov.
Click here to clear all email notifications from this account.
For further assistance, please contact IHS Markit Customer Care.

------PLEASE DO NOT REPLY TO THIS AUTOMATED MESSAGE------

© 2018, IHS Markit. All rights reserved. Reproduction in whole or in part without permission is prohibited.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Anthony Pugliese; Laura Swett; Angela Amos; Nicholas Gladd; Carolyn Clarkin
**Cc:** Martin Kirkwood
**Subject:** ELCON
**Attachments:** Bio FERC.DOCX

---

Attendees:
John Hughes, President & CEO, ELCON
Charles Acquard, Vice President, Government & Public Affairs, ELCON
Joe Matranga, SVP of Power, Occidental Energy Ventures, LLC
Nate Murphy, Counsel, Environmental Safety & Regulatory Affairs Law, Valero
Michelle D'Antuono, Occidental Energy Ventures, LLC
Thomas F. Martinelli, Dupont Sourcing & Logistics
David Meade, Associate Director, Energy Management, Praxair, Inc.
Glen Lyons, Manager, Power Regulatory ExxonMobil
Lee Morris, Valero

Text of Original Request:

Name: Charles Acquard
Title: Vice President
Company / Organization: ELCON
Phone Number: [redacted]
Web Address: www.elcon.org <http://www.elcon.org>
Email: [redacted]
subject=RE:%20Request%20for%20a%20Meeting%20with%20Chairman%20Neil%20Chatterjee>
Purpose of Meeting (Detailed Description): I would like to schedule a meeting at the end of this month or early February for ELCON staff and members to discuss a number of issues with the Chairman including PURPA reform and issues related to resilience as it impacts large industrial consumers of electricity. If possible, could we have two potential dates for the meeting so I can run it by my members to insure that a good variety of industrial consumers are able to attend. Thanks.
Is this matter before the Commission? Yes
Proposed Date for Meeting: January 30
Alternate Date for Meeting: February 6
Estimate of the Number of people attending: 10

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

| | |
|---|---|
| **From:** | Schuhart, Denise |
| **To:** | Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anthony Pugliese; April Ballou; Benjamin Williams; Brett Rendina; Brian George; Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Elizabeth Glenn; Elizabeth Salerno; Eric Vandenberg; Erica Siegmund Hough; Gretchen Kershaw; Jessica Cockrell; Kathleen Benard; Kevin McIntyre; LaShawn Dickens; Laura Swett; Lindsee Gentry; Matthew Christiansen; Meghan Estenson; Michelle R. Brown; Mindi Sauter; Neil Chatterjee; Nicholas Gladd; Pamela Quinlan; Rich Glick; Rikardo Hull; Robert F. Powelson; Robert Ross; Steven Wellner; Tia Johnson; Travis Fisher; Kurt Longo; Daniel Nowak; Jorge Moncayo; Valerie Martin; Anna Cochrane; Jette Gebhart; Scott Everngam; Michael Goldenberg |
| **Cc:** | Glazer, Craig; Lu, Chenchao; O"Hara, Chris; Paul M. Flynn; Sara Gordon |
| **Subject:** | FERC Filing COURTESY COPY from PJM |
| **Date:** | Thursday, July 26, 2018 2:44:42 PM |
| **Attachments:** | 20180726-er18-2068-000-Waiver Request (W0162938x8DF47).pdf |

**Attached please find a courtesy copy to a Waiver Request (described below) electronically submitted today. Please feel free to contact me or the signatories to the filing with any questions.**

On July 26, 2018, in Docket No. ER18-2068-000, PJM Interconnection, L.L.C. electronically submitted to FERC a request for waiver of certain requirements of PJM Tariff, Appendix to Attachment K, section 7.3.9, and the identical provisions of Operating Agreement, Schedule 1, section 7.3.9, as necessary to ensure an orderly and efficient liquidation of the large FTR portfolio of a recently defaulted Member in a manner that minimizes distortion of FTR markets and manages Default Allocation Assessments to other Members.

*Denise Schuhart*
*PJM Interconnection, L.L.C.*
*1200 G Street, N.W., Suite 600*
*Washington, DC 20005*
*202-393-1200 ext. 433*
denise.schuhart@pjm.com

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Lawrence Greenfield
**To:** [redacted]; Travis Fisher; [redacted]
**Subject:** FW:
**Date:** Monday, July 9, 2018 11:53:10 AM
**Attachments:** 06-11-18 Cogeneration Association of California (CAC) DraftGreenBookComments.pdf

---

I can't recall whether I already sent this to you or not, but if I didn't here it is.

**From:** Michael Alcantar [mailto:mpa@a-klaw.com]
**Sent:** Monday, July 02, 2018 4:28 PM
**To:** Lawrence Greenfield <Lawrence.Greenfield@ferc.gov>
**Subject:**

Food for thought today.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Travis Fisher
**To:** [redacted]
**Subject:** FW: Court vacates and remands FERC"s hydro license orders
**Date:** Friday, July 6, 2018 4:11:00 PM
**Attachments:** 16-1195.pdf

I assume you get the FERC-HQ emails, but just flagging this for you guys...

**From:** Diane Naca
**Sent:** Friday, July 06, 2018 2:07 PM
**To:** FERC-HQ <FERC-HQ@ferc.gov>; FERC-RO <FERC-RO@ferc.gov>
**Subject:** Court vacates and remands FERC's hydro license orders

Today, the U.S. Court of Appeals for the D.C. Circuit granted an appeal by several environmental conservation groups challenging orders that granted a relicense to a hydroelectric project, vacated the license, and remanded to the Commission for further proceedings. *Alabama Power Company*, 143 FERC ¶ 61,249 (2013), *order on reh'g*, 155 FERC ¶ 61,080 (2016), *denying reh'g*, 156 FERC ¶ 61,171 (2016). The court also remanded the Biological Opinion prepared by U.S. Fish and Wildlife Service, upon which the Commission relied in its relicense orders. The appeal was before Judges Millett and Srinivasan, and Senior Judge Sentelle.

The license allowed Alabama Power to continue operating seven existing hydropower and storage developments located in Alabama and Georgia, collectively known as the Coosa River Project. The Commission granted the license after adopting staff's Environmental Assessment, finding that the Assessment thoroughly weighed the potential environmental impacts of relicensing the project raised by the various protestors. It agreed with staff's conclusion that an environmental impact statement was not required in this instance under NEPA. As part of the environmental analysis, the Assessment approved of Alabama Power's proposed approach to maintain a 4.0 mg/L standard for "dissolved oxygen" in the project waters during periods when the project was generating electricity and not to maintain any DO standard when the project was not generating electricity.

The court (in an opinion authored by Judge Millett) faulted the Commission for preparing an environmental assessment instead of a more detailed environmental impact statement. Specifically, it held that the Commission failed to reasonably consider and address "multiple indicators that the project could have a significant impact on the environment," including the types of substantial effects on fish passage and dissolved oxygen levels "that would normally compel the preparation of an Environmental Impact Statement." Slip op. 27. The court also found that the Commission misanalysed the cumulative environmental effects of the Coosa River Project. *Id.*

On fish passage, the court found that the Commission improperly relied upon dated fish entrainment studies and estimates provided by the license applicant itself, instead of collecting updated information or independently verifying Alabama Power's estimates. *Id.* The Commission's acceptance of those estimates, in the court's view, was unreasoned and

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

insufficient under NEPA.

On dissolved oxygen, the court pointed to evidence in the record showing that the Project "regularly and predictably" violated water quality license conditions during both generation and non-generation periods. *See* slip op. 35. The court dismissed as insufficient the license requirement to install "oxygen diffuser aeration systems" because Alabama Power failed to provide relevant details about those systems prior to the Commission accepting this proposal in the license. *Id*.

As to the Biological Opinion prepared by Fish & Wildlife Service, the court held that FWS acted arbitrarily in establishing an environmental baseline "without considering the degradation to the environment caused by the Coosa River Project's operation and its continuing impacts." Slip op. 22. In the court's view, the Biological Opinion failed to analyze the effects of depressed dissolved oxygen levels on the river system and species. *Id*. 22-23. The Opinion's discussion of the environmental baseline also largely omitted the effects on aquatic species stemming from a lack of fish passage and minimal flow requirements. In defining the environmental baseline, the Biological Opinion improperly excluded the historical impacts on the river area—including the original construction and operation of Alabama Power's hydro developments—in a manner inconsistent with the agency's Endangered Species Act Consultation Handbook. *See id*. 20-22. This failure to consider the historical impacts on the river area also "fatally infected" the Commission's cumulative effects analysis. *Id*. 39. The court further held that the Biological Opinion's Incidental Take Statement was legally insufficient under the Endangered Species Act. *See id*. 25-26.

Briefed and argued by Anand Viswanathan

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky
**To:** Anthony Pugliese
**Subject:** FW: Invitation to present at National Academies of Sciences meeting of Board on Energy
**Date:** Monday, March 5, 2018 10:23:47 AM

---

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Wednesday, February 07, 2018 9:08 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>; Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Great, thanks much Anthony. Very much looking forward to it, and I will follow up with some prompts when the time gets closer.
ben

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Tuesday, February 6, 2018 1:18 PM
**To:** Wender, Ben ; Tracy Adamsky
**Cc:** Michelle R. Brown
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

4:30 should be fine. Thanks.

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Tuesday, February 06, 2018 9:18 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

This is wonderful news, thanks Tracy and Anthony!

I will follow up a few prompts and logistics for Anthony's presentation. Briefly, we are hoping for about 15 minutes of update on FERC's activities in electricity and energy system resilience, followed by about 15 minutes of open discussion with the Board members. The meeting will be closed to the public and media.

Unfortunately our senate speaker has a tight schedule—would it be possible to have Anthony present from 430-500pm instead of 4pm?

Thanks again for all of your help Tracy, and Anthony for agreeing to join us.

Wishing you the best,
ben

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Tuesday, February 6, 2018 8:38 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Hi Ben,

The Chairman's Chief of Staff, Anthony Pugliese, would be available to speak at 4PM on March 13th. I have cc'd him on this email. If you could send the details to both of us, that would be helpful.

Thanks!
Tracy

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Monday, February 05, 2018 8:58 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

We can be somewhat flexible with the speaking time based on the speaker's preference, but had tentatively planned for 4-430 pm.

Is there a time that preferable?

Thanks for your help Tracy,
ben

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Monday, February 5, 2018 8:45 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Mr. Wender,

What time would the person be speaking on the 13th?

Tracy

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Friday, February 02, 2018 11:56 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Kevin McIntyre <Kevin.McIntyre@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Thank you, Tracy. We understand that the Chairman must have a busy schedule.

Nonetheless, we are eager to learn about resilience related activities ongoing at FERC. Will you provide recommendations for other senior FERC staff who are available and can describe ongoing resilience activities?

Thank you and best,

Ben A Wender
Program Officer
Board on Energy and Environmental Systems
Division on Engineering and Physical Sciences
bwender@nas.edu
[redacted]

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Friday, February 2, 2018 11:43 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Mr. Wender,

Thank you very much for your request. The Chairman appreciates the invitation, but unfortunately, he will not be available to speak at the National Academies of Sciences, Engineering, and Medicine's meeting in DC on March 13th.

Thank you,

Tracy Adamsky
Confidential Assistant
Office of Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
tracy.adamsky@ferc.gov
(202) 502-6821

**From:** Wender, Ben [mailto:BWender@nas.edu]

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Sent:** Wednesday, January 31, 2018 10:58 AM
**To:** Kevin McIntyre <Kevin.McIntyre@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Cc:** Kerxhalli-Kleinfield, Michaela <MKerxhalliKleinfield@nas.edu>; Holmes, John <JHolmes@nas.edu>
**Subject:** Invitation to present at National Academies of Sciences meeting of Board on Energy

Dear Chairman McIntyre and Chief of Staff Pugliese;

The National Academies of Sciences, Engineering, and Medicine's Board on Energy and Environmental Systems is meeting in Washington DC on March 13th, 2018, and would be honored if you would join us to present on the ongoing activities at FERC related to energy system resilience and market compensation for different resilience attributes. The Board would also be interested in any comments about the recently completed study for your office "Enhancing the Resilience of the Nation's Electricity System". I am happy to share additional prompts if you are interested.

The current members of the Board are listed below, and many have expressed strong interest in hearing from you.

Please let me know if you are available to present on the afternoon of March 13th, and if there are preferred times for you to join.

Thank you very much for your consideration,

Ben Wender
Program Officer
Board on Energy and Environmental Systems
Division on Engineering and Physical Sciences
bwender@nas.edu
[redacted]

Current BEES Members:
**JARED COHON, NAE,** Carnegie Mellon University, *Chair*
**DAVID ALLEN, NAE,** University of Texas, Austin
**W. TERRY BOSTON, NAE,** GridLiance GP, LLC and Grid Protection Alliance
**WILLIAM BRINKMAN, NAS,** Princeton University, Princeton, New Jersey
**BARBARA KATES-GARNICK,** Tufts University, Boston, Massachusetts
**JOANN MILLIKEN,** Independent Consultant, Alexandria, Virginia
**MARGO OGE,** Office of Transportation and Air Quality, Environmental Protection Agency, McLean, Virginia
**MICHAEL RAMAGE, NAE,** ExxonMobil Research and Engineering Company (retired), New York City
**DOROTHY ROBYN,** Consultant, Washington, D.C.
**KELLY SIMS-GALLAGHER,** The Fletcher School, Tufts University, Medford, Massachusetts
**JOHN WALL, NAE,** Cummins Inc (retired), Belvedere, California
**ROBERT WEISENMILLER,** California Energy Commission, Sacramento, California

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

NEM NATIONAL ENERGY MARKETERS ASSOCIATION

3333 K Street, NW, Suite 110
Washington, D.C. 20007
Tel: 202-333-3288
Fax: 202-333-3266

February 12, 2018

The Honorable Kevin J. McIntyre
Chairman
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426
Kevin.mcintyre@ferc.gov

**RE: National Energy Marketers Association May 1st & May 2nd 2018**
**21st Annual National Energy Restructuring Conference**

The Honorable Chairman McInyre,

**The National Energy Marketers Association (NEM)**[1] will convene its 21st **ANNUAL National Energy Restructuring Conference** at the Hyatt Regency Capital in Washington D.C. on **May 1st & May 2nd, 2018.** Topics of discussion will include **"Energy Choice 2.0: A New Era in Consumer Choice. Innovation and Opportunities"**

*Congressional Leadership, Administration Officials, Governors, FERC, PUC/PSC Chairs, Commissioners and Key Staff. PJM, NYISO, and ISO-NE Officials, State Attorneys General, State Consumer Counsels, Municipalities, Utilities, National Energy Marketers Association's Leadership Team as well as Energy Suppliers, Aggregators, Brokers, and Consumers of Energy-Related Products, Services, Information and Advanced Technologies* will be attending from throughout North America representing the cutting edge in thought leadership in competitive energy market policies, practices and -market designs. ***We would be honored if you would join us as a Keynote Speaker on May 1st or May 2nd, 2018.***

You are also invited to a University Club reception, which will be held on the evening of April 30, 2018, in Washington, DC. Your travel and accommodations will be provided or reimbursed. Please contact Catalina Aguilar at (202) 333-3288 to assist and coordinate your travel arrangements. **Please email us at info@energymarketers.com and let us know if you can save these dates, and whether we can use your picture and list you as "invited" or "confirmed" in all of the national and international publications, as soon as possible.**

Sincerely,

Craig G. Goodman
President

[1] NEM is a non-profit trade association representing both leading suppliers and major consumers of natural gas and electricity as well as energy-related products, services, information, and advanced technologies throughout the United States, Canada, and the European Union. NEM's membership includes independent power producers, suppliers of distributed generation, energy brokers, power traders, global commodity exchanges and clearing solutions, demand side and load management firms, direct marketing organizations, billing, back office, customer service and related information technology providers. NEM members also include inventors, patent holders, systems integrators, and developers of advanced metering, solar, fuel cell, lighting, and power line technologies.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

# National Energy Marketers Association

**21st Annual National Energy Restructuring Conference**
**April 30-May 2, 2018**
**Hyatt Regency Capitol Hill**

## "Energy Choice 2.0: A New Era in Consumer Choice, Innovation and Opportunities"

**April 30, 2018**
**Welcome Reception**

## May 1, 2018
**Day One**

**8:00 AM** **Networking Breakfast**

**9:00 AM** **Welcome and Opening Remarks** - Craig Goodman, President, NEM

**9:30 AM** **Presentation of NEM Awards for Advancements in Competitive Energy Markets**

**10:00 AM** **2018 Retail Energy Markets** – Keynote Commissioner Speakers to deliver reports on significant recent legislative and regulatory issues in key restructuring jurisdictions, including consumer protection rules; marketing standards; consumer education; licensing requirements; reporting, notice and disclosure requirements; customer billing constructs; data access; renewable portfolio standards; distributed energy resources; regulatory compliance and enforcement actions.

**Keynote Speakers:** Commissioners from New England, Northeast, Mid-Atlantic, Southeast, Midwest, and Western states (invited)

**12:00PM** **Keynote Luncheon Addresses** – Legislators and Administration Officials (invited)

**1:30PM** **Energy Choice 2.0: The Next Wave of Consumer-Driven Energy Market Openings** – Examination of how consumer demand for energy choice options, particularly green options, is propelling a new wave of energy market openings in various states. What is the status of these market initiatives? How is technology driving and enabling this movement?

**Panelists:** Legislators, Regulators and Administration Officials from CA, NV, FL, VA (invited)
NEM Member Suppliers, Consumers and Technologists



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**3:00PM** **Networking Break**

**3:30PM** **Energy Choice 2.0: Market Enhancements to Improve Consumer Engagement, Supplier Participation and Overall Market Competition** – What regulations, business rules and processes need to be changed to allow the next wave of market competition and innovative products and services to be offered to consumers?

- Timely supplier access to granular data
- Supplier consolidated billing and related options
- Expansion of POR and/or on-bill financing for value-added products and services
- Plug and play infrastructure for market participants
- Customers settled to actual load (versus standard load profile using average utility usage data)

**Panelists:** NEM Member CEOs

**5:00PM** **VIP Reception**

## May 2, 2018
## Day Two

**8:00AM** **Networking Breakfast**

**9:00AM** **Keynote Speakers:** Legislators and Administration Officials (invited)

**10:00AM** **Grid Resilience and Wholesale and Retail Energy Markets**

- **Discussion of FERC's review of grid resilience and what "resilience" means;**
- **ISO/RTO reports of resilience measures currently in place and to be undertaken;**
- **Complex issues related to nuclear and coal generation valuation and participation in markets, impact of state mandates and outstanding legislation**
- **Wholesale market reforms and proposals that enhance retail competition and support grid resilience**

**Featured Speakers:**
FERC Commissioners (invited)
PJM, NYISO, ISONE, MISO, ERCOT, CAISO officials (invited)

**Roundtable Participants:**
State PUC Commissioners
Wholesale and Retail Suppliers and Technologists

**12:00PM** **Adjourn**



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Kevin McIntyre
**To:** Anthony Pugliese
**Cc:** James Danly
**Subject:** Fwd: Keynote Speaker Invitation - National Energy Marketers Association May 1st & May 2nd 2018
**Date:** Monday, March 12, 2018 9:23:16 PM
**Attachments:** [redacted]

---

[redacted] Not sure I know these guys.

Don't reply tonight; we can cover tomorrow.

Begin forwarded message:

> **From:** Catalina Aguilar <catalina@energymarketers.com>
> **Date:** March 12, 2018 at 8:58:56 PM EDT
> **To:** <kevin.mcintyre@ferc.gov>
> **Cc:** <cgoodman@energymarketers.com>
> **Subject: RE: Keynote Speaker Invitation - National Energy Marketers Association May 1st & May 2nd 2018**
> **Reply-To:** <catalina@energymarketers.com>
>
> <!--[if !vml]-->

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Derek Bandera
**To:** Travis Fisher
**Cc:** Anthony Pugliese
**Subject:** IMM Reference Materials
**Date:** Wednesday, July 25, 2018 10:48:14 AM
**Attachments:** Order-719.pdf
Order 719-A.pdf
2005 MMU Policy Statement.pdf
2007 IMM Tech Conference.pdf
DC Circuit - Old Dominion Standing.pdf
PJM EL17-62 6-19-18.pdf
Bowring Participation Rejection.docx

---

Travis,
Great to chat with you this morning.
Attached are the IMM/MMU Materials relating to Issues that may serve as useful references I mentioned. They include:

- 2005 Policy Statement on MMUs (PL05-1)
- 2007 Review of Market Monitoring Policies Technical Conference Agenda (AD07-8)
- 2008 Order 719 – (incl. Market Monitoring Policies)
  - 2009 Order 719a
- 2018 DC Circuit "Old Dominion" Decision (IMM Standing)
- 2018 PJM Filing Relating to IMM Standing (EL17-62) (other filings in the docket by PJM relate to IMM role)
- 2018 Ruling in PA Solar Park relating to IMM Standing (ER18-1226)

I'll plan to touch base with you next week. Let me know if I can be of any help in the meantime.
Thank you!
-Derek

Derek Bandera
Executive Director, Federal Regulatory Affairs
MISO

202-674-4909
dbandera@misoenergy.org

505 9th Street, NW
Suite 1000
Washington, DC 20004

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Anthony Pugliese; Nicholas Gladd; Angela Amos; Carolyn Clarkin; Laura Swett
**Cc:** Martin Kirkwood
**Subject:** ISO-NE
**Attachments:** Bio_G van Welie_Brief_02-22-2017 Inc Pix.docx
Hepper Bio 2018.doc
George Bio 2018.doc

---

Attendees:
Gordon van Welie, President & CEO, ISO-NE
Raymond Hepper, Vice President, General Counsel & Corporate Secretary, ISO-NE
Anne C. George, Vice President, External Affairs & Corporate Communications, ISO-NE

Text of Original Request:

I feel like I've been doing this more than I generally would, but we are wondering if the Chairman would have a half hour on the afternoon of Tuesday, March 6, or relatively early on Wednesday, March 7, to meet with Gordon (and potentially one or two others). The purposes of the meeting would be to discuss our upcoming resilience comments and the issues surrounding a significant generation station that we have been discussing with Nick. Thanks for any response you can provide. The reason for these specific dates is that Gordon will already be in D.C. on those days with other non-FERC meetings.
Ray

Raymond Hepper
Vice President, General Counsel & Corporate Secretary
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040
Tel: 413-540-4592
Cell: [redacted]
E-mai[redacted]>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Anthony Pugliese; Laura Swett; Carolyn Clarkin; Angela Amos; Nicholas Gladd
**Cc:** Martin Kirkwood
**Subject:** ITC Holdings Corp.
**Attachments:** ITC_LBlair_NPlaushin_DOginsky 2018 Bios.pdf
ITC_FERC Meeting_Mar 13, 2018.pdf

---

Attendees:
Linda Blair Apsey, President & CEO
Nina Plaushin, VP, Regulatory, Federal Affairs & Communications
Dan Oginsky, Executive VP & Chief Administrative Officer

Text of Original Request:

Name: Michelle Bynum
Title: Executive Assistant
Company / Organization: ITC Holdings Corp.
Phone Number: [redacted]
Web Address:
Email: [redacted]
subject=RE:%20Request%20for%20a%20Meeting%20with%20Chairman%20Neil%20Chatterjee>
Purpose of Meeting (Detailed Description): Requesting a courtesy visit/introduction meeting with newly appointed FERC Chairman.
Is this matter before the Commission? No
Proposed Date for Meeting: January 16, 2018
Alternate Date for Meeting: January 18, 2018
Estimate of the Number of people attending: 3

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Derek Bandera
**To:** Kevin McIntyre; Cheryl LaFleur; Neil Chatterjee; Robert F. Powelson; Rich Glick; Anthony Pugliese; Anna Cochrane; Jette Gebhart; James Danly; David Morenoff; [redacted] Arnie Quinn; Jignasa Gadani; David Ortiz; Joseph McClelland; David Andrejcak; Martin Kirkwood; Maria Farinella; Leonard Tao; Sandra Waldstein; Cameron Schilling; Christy Walsh; Leslie Kerr; [redacted] (6)
**Cc:** Carolyn Clarkin; Angela Amos; Laura Swett; Nicholas Gladd; Tracy Adamsky; Steven Wellner; Andrew Weinstein; Becky Robinson; Jessica Cockrell; Catherine Giljohann; Andrew Holleman; Andrea Spring; Mindi Sauter; Eric Vandenberg; Robert Ross; Lindsee Gentry; April Ballou; Brett Rendina; Rikardo Hull; Brian George; Meghan Estenson; Erica Siegmund Hough; Pamela Quinlan; Matthew Christiansen; Benjamin Williams
**Subject:** MISO Resilience Filing - AD18-7
**Date:** Friday, March 9, 2018 1:41:29 PM
**Attachments:** MISO-Resilience-AD18-7.pdf

---

Good afternoon,

For your convenience, attached is MISO's filing in response to the Commission's inquiry on grid resilience. Thank you for the opportunity to share MISO's experiences and observations. As expressed in the comments, grid resilience is core to our foundation and day-to-day activities at MISO. MISO works closely with its members, States and other stakeholders to ensure grid reliability and resilience 24/7, 365 days a year. We constantly evaluate our operations and look for opportunities to strengthen our systems, reduce risk and contribute to the dialogue and knowledge-sharing that benefits the industry and the power grid. We also see opportunities to further enhance the resilience of the bulk power system through focused efforts relating to transmission planning, inter-regional operations and adoption of information technology tools.

Definition of Resilience

MISO's understanding of resilience generally aligns with the Commission's proposed definition. However, to ensure that key resilience attributes are accounted for and addressed in identifying and mitigating resilience risks, the Commission's definition of resilience could be broadened in scope to acknowledge the changing nature of the electric grid – to encompass not only the ability to withstand specific disruptive events, but also, include the ability to adapt to ongoing changes and supply portfolio evolution to ensure that grid performance remains reliable.

MISO's Efforts

Some of the ways MISO works to ensure resilience include:

- Markets - The market roadmap process that allows MISO to prioritize market enhancements that align incentives with operational needs of the grid.
- Transmission Planning - Robust transmission planning processes that identify regional solutions to address grid needs in an efficient, cost-effective manner for customers.
- Operations - Simulation-based training for MISO and members to plan for high-impact event risks, such as hurricanes and extreme weather scenarios.
- Gas-Electric Coordination - Ongoing gas-electric coordination to address emerging challenges resulting from a changing generation fleet.

Scope of Resilience

The Commission's evaluation of resilience issues should not be limited to just RTOs and ISO regions, rather, grid resilience is a national issue that broadly impacts the bulk power system, including regions that have not chosen RTO/ISO membership. A robust effort to assess and enhance grid

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

resilience of the bulk power system should incorporate feedback and experiences of the wider industry.

In addition, the Distribution System, which is relatively more vulnerable to high-impact events, plays a significant role in resilience. MISO continues to work collaboratively with its State and local regulators to ensure a holistic view and coordinated approach to resilience across the entire electric system. To the extent the Commission is interested in addressing concerns at the distribution level, the Commission should continue working in partnership with State regulators to further help ensure a coordinated effort.

Opportunities for Further Progress

Moving forward, the industry must continue to address new challenges, embrace new opportunities, and work toward solutions related to transmission planning, inter-regional operations and cyber security rules that accommodate integration of superior technologies.

- Information Technology Tools - MISO's extensive review of external risks has led to investments in leading technologies and security tools to mitigate cyber and physical threats to MISO's operation of the grid. The Commission should ensure that inflexible Critical Infrastructure Protection ("CIP") compliance standards do not create limitations on the implementation of superior tools and best practices to support grid security and resilience.
- Transmission Planning - Continued industry dialogue on more effectively identifying, valuing, and incorporating resilience attributes in transmission planning processes will help the Commission identify further opportunities to support and advance grid resilience.
- Inter-regional Operations - Going forward, additional diligence and analysis is necessary to ensure that artificial barriers that may affect inter-regional transactions do not adversely affect resilient grid operations. The Commission should actively support more effective interregional operations to increase the tools and resources available to support grid resilience.

MISO is committed to participating in a robust dialogue that further ensures the resilience of nation's power grid. We look forward to working with FERC commissioners and staff, state commissions, our stakeholder community, and others as this broader industry discussion continues. Please don't hesitate let me know if you have any questions I can be helpful with.

-Derek

Derek Bandera
Executive Director, Federal Regulatory Affairs
MISO

202-674-4909
dbandera@misoenergy.org

505 9th Street, NW

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Suite 1000
Washington, DC 20004

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Derek Bandera
**To:** Laura Swett
**Cc:** Anthony Pugliese; Carolyn Clarkin; Angela Amos; Nicholas Gladd; Tracy Adamsky
**Subject:** MISO Update
**Date:** Tuesday, March 6, 2018 9:23:29 AM

---

Good Morning Laura,
I wanted to check in to see if you were interested in an update on MISO activities later next week. We've had a few prefiling meetings with Commission staff and I can update you on upcoming filings generally. I'd be happy to follow up on any questions you might have following the discussion with John Bear at the NARUC meetings. Among the topics I was thinking might be of interest:

- Locational RA Changes (late March Filing)
- HVDC Reforms (late March filing)
- Resilience Filing Review (this Friday)
- Hartburg Sabine Competitive Transmission Solicitation (Process Underway)
- MISO Market Roadmap/IMM Recommendations (meeting with staff tomorrow, 3/7)
- DER Technical Conference Participation
- IL ZEC Court Appeal

Would the afternoon following the Open Meeting next week (3/15) work for you or that Friday work for you (3/16)?
Let me know if I can be of any assistance. Good Luck with next week's Open Meeting!

Thank you!
-Derek

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**UNITED STATES OF AMERICA**
**BEFORE THE**
**FEDERAL ENERGY REGULATORY COMMISSION**

| | | |
|---|---|---|
| **Grid Resilience in Regional Transmission Organizations and Independent System Operators** | ) ) ) | **Docket No. AD18-7-000** |

## RESPONSES OF THE MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC.

The Midcontinent Independent System Operator, Inc. ("MISO") submits this response to the Federal Energy Regulatory Commission ("Commission") Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures ("Order") issued on January 8, 2018.[1] The Commission Order initiated a new proceeding to specifically evaluate the resilience of the bulk power system in regions operated by Regional Transmission Organizations ("RTOs") and Independent System Operators ("ISOs"). In addition, the Order directed each RTO and ISO to submit information to the Commission on certain resilience issues and concerns.

For nearly two decades, MISO has engaged in thorough planning, thoughtful discussion, and careful consideration with States, members, and the broader stakeholder community to develop tools and processes that promote grid resilience. MISO's core foundation of ensuring regional reliability needs are met at the lowest possible cost has facilitated the creation of robust planning, operations, markets, and security mechanisms that are utilized to not only identify, assess and avoid resilience threats, but also to mitigate any impacts that may occur from high-risk events. Through the collective efforts and investments of MISO, MISO Transmission

[1] *Order Terminating Rulemaking Proceeding, Initiating New Proceeding, and Establishing Additional Procedures,* 162 FERC ¶ 61,012 (2018).

AMERICAN OVERSIGHT

Owners, Load Serving Entities, States, and other stakeholders, MISO's grid is resilient. Going forward, the Commission should consider enhancements to inter-regional operations and congestion management that will support grid resilience. As the Commission considers its next steps on resilience, MISO notes opportunities to enhance resilience exists in the following areas:

- Information Technology Tools - MISO's extensive review of external risks has led to investments in leading technologies and security tools to mitigate cyber and physical threats to MISO's operation of the grid. The Commission should ensure that inflexible Critical Infrastructure Protection ("CIP") compliance standards do not create limitations on the implementation of superior tools and best practices to support grid security and resilience.
- Transmission Planning - Continued industry dialogue on more effectively identifying, valuing, and incorporating resilience attributes in transmission planning processes will help the Commission identify further opportunities to support and advance grid resilience.
- Inter-regional Operations - Going forward, additional diligence and analysis is necessary to ensure that artificial barriers that may affect inter-regional transactions do not adversely affect resilient grid operations. The Commission should actively support more effective interregional operations to increase the tools and resources available to support grid resilience.

Each of these items is discussed in greater detail in the body of these comments.

## I. EXECUTIVE SUMMARY

MISO appreciates the opportunity to provide the Commission with an overview of MISO's efforts to assess and mitigate threats to resilience. RTOs and ISOs are well-positioned to utilize their expertise and experiences to continue this industry dialogue. However, the Commission's evaluation of resilience issues, and any processes that may be developed, should not be limited to just RTOs and ISOs. Rather, grid resilience is a national issue that broadly impacts the bulk power system. While MISO does not have any imminent or immediate resilience concerns, there are opportunities for the Commission to play a greater role by opening an industry dialogue to identify future actions to support on grid resilience efforts in the areas of: (1) information technology tools; (2) transmission planning, and; (3) inter-regional operations.



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Definition of Resilience**

The Commission's characterization and proposed definition of resilience recognizes that resilience is not just a fuel security matter, but encompasses careful coordination between transmission, operations and markets, information technology, cybersecurity, and system planning functions. MISO views resilience beyond just the ability to respond to events, but also the ability to assess and respond to changes in the nature of "events" that are the result of the transformative industry changes in fuel economics, environmental regulations, technology, customer preferences and State policies.

**MISO's Efforts to Assess and Mitigate Resilience Risks**

Efforts to assess and mitigate risks span the entire organization. MISO's regional size, scope, and integrated systems support its ability to assess and maintain resilience and provide MISO members with a level of resilience that would not be possible with each member acting individually. Utilizing an expansive footprint with diverse supply and demand profiles, MISO is well positioned to leverage this diversity of resources to effectively respond to events through real-time operations. Examples of MISO's ongoing efforts and initiatives include:

- **Transmission Planning.** MISO's robust transmission planning processes identify regional solutions to address both near-term and long-term grid needs in an efficient, cost-effective manner. On an annual basis, MISO develops the MISO Transmission Expansion Plan ("MTEP") through an inclusive and transparent stakeholder process. Through the MTEP process, MISO evaluates various types of projects that, when taken together, result in an electric infrastructure plan that is sufficiently robust to meet local and regional reliability needs and enable competition among wholesale capacity and energy suppliers in the MISO markets. Further, the majority of



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000064

transmission Multi-Value Projects ("MVPs"), approved in 2011 to address the large-scale emergence of wind resources in the MISO footprint, support future grid resilience. MISO regularly evaluates the impact of the evolving industry structure and technology developments as an integral part of its transmission planning processes. Similarly, MISO routinely tests its transmission system for its response to severe events. As a part of the annual planning process, MISO evaluates approximately 6,500 extreme events impacting loss of multiple facilities on the transmission grid

- **Preparation Drills.** Training sessions, including drills and readiness workshops, are routinely offered to stakeholders along with a comprehensive set of protocols to communicate and coordinate with state regulators. MISO readiness drills typically use the Dispatch Training Simulator and other simulator tools to enhance the participant experience and prepare for extreme events. In addition to the above mentioned readiness drills, MISO routinely participates in national resilience drills including the North American Electric Reliability Corporation's ("NERC") GridEx.[2] These drills are not only beneficial to understanding physical threats but also cyber risks.
- **Market Roadmap.** MISO prioritizes market enhancements that align incentives with operational needs of the grid. The Market Roadmap process helps ensure that market investments are done in a cost efficient manner and are able to support the evolving

[2] GridEx is a biennial, two-day exercise hosted by NERC that simulates coordinated cyber and physical security threats so that utilities can exercise response and recovery plans, strengthen their crisis communications relationships, and provide input for lessons learned. The first GridEx event took place in November 2011. NERC's GridEx website is located at http://www.nerc.com/pa/CI/CIPOutreach/Pages/GridEX.aspx.



AMERICAN OVERSIGHT

grid of the future. MISO and its stakeholders continue to develop, evaluate and assess market initiatives, including new products and approaches that will support future resilience needs.

- **Gas-electric coordination enhancements.** MISO has many activities underway to improve gas-electric coordination that support grid resilience. Through the development of advanced communication protocols with the natural gas industry, MISO has enhanced situational awareness that helps to identify pre-event risks and post-event lessons learned. MISO continues to expand this cross-industry engagement. To better understand issues surrounding pipeline contingencies, MISO is conducting a contingency planning study to take an in-depth look at potential gas-electric risks and issues.
- **Reliability Initiatives.** Changing market conditions and policies are contributing to a resource portfolio with altered operational characteristics that may impact resource availability. Given these changes, MISO, States, and other stakeholders have more broadly begun discussions around Resource Availability and Need ("RAN") to determine whether current processes for the conversion of committed capacity to energy enable reliable and efficient operation of the Bulk Electric System today and into the foreseeable future. MISO is committed to improving its ability to understand, forecast and communicate uncertainties regarding resource availability.
- **Market System Enhancement.** MISO's exhaustive review of external risks has led to investments in leading technologies and security tools to mitigate cyber and physical threats to the grid. Collaboration with a diverse set of stakeholder and industry groups facilitates robust dialogue and positions that help mitigate emerging



AMERICAN OVERSIGHT

risks and threats. As part of its Market System Enhancement ("MSE"), MISO conducted a comprehensive assessment to determine the system performance and security requirements that will be necessary to meet MISO's long-term needs. The MSE also will fortify MISO's cyber security measures to protect against cyber and physical-security threats and established a foundation for putting new systems in place to respond to changing conditions.

- **Stakeholder Proceedings.** MISO commenced stakeholder proceedings on resilience in late 2017, prior to the Commission's Order. Members of MISO's Advisory Committee initiated a grid resilience "Hot Topic Session" that is focusing on resilience issues unique to the MISO region. With stakeholder input, MISO prepared an introduction and set of questions for stakeholder sectors to provide written responses. A diverse set of stakeholder sectors submitted written feedback and comments on February 28, 2018. Key themes will be further discussed at MISO's Advisory Committee meeting on March 28, 2018 with the MISO Board and Advisory Committee. Among the comments received to date, the following themes emerged from sector comments:
  - Through the shared efforts of MISO, transmission and generation owners, State and local regulators, and the broader stakeholder community, the MISO region has successfully ensured resilience (and reliability) for decades.
  - Future resilience endeavors must balance risk with costs to consumers.
  - Training, including drills and simulation exercises, as well as continued focus on implications around an evolving resource portfolio, should continue in a collaborative manner with MISO and the stakeholder community.

These discussions are only the beginning of MISO's engagement with stakeholders. In addition to the upcoming Advisory Committee meeting, stakeholders will continue to address and



AMERICAN OVERSIGHT

consider the issues identified above (and throughout this response) through the Resource Adequacy Subcommittee, Market Subcommittee, and Reliability Subcommittee.

**Opportunities for Commission Efforts to Enhance Resilience**

While MISO does not face any imminent reliability or resilience issues, there are several opportunities for the Commission to continue focused industry dialogue. MISO believes the Commission has several areas worthy of further engagement to enhance the resilience of electric transmission grid, including.

- **Enabling Industry Adoption of Best in Class Technologies**

  Although new information technologies provide significant opportunities to enhance grid security and efficiency, cyber-security risks remain. CIP standards must provide the flexibility to allow for the adoption of superior new technologies and best practices. Industry dialogue will help ensure that CIP standards continue to be a floor for grid security and resilience rather than an artificial ceiling.

- **Valuing Resilience in Transmission Planning Processes**

  Opportunities for industry engagement also exist in transmission planning processes. Additional dialogue on effectively valuing resilience in transmission planning processes would be beneficial for regional planning programs. Industry discussion could help guide stakeholder processes to better evaluate the benefits and costs for projects with significant resilience benefits.

- **Distribution System Resilience**

  Many significant challenges to resilience occur at the distribution level. MISO continues to engage with State and local regulators to better understand our respective roles, particularly as local distribution systems may be vulnerable to high-impact events that



AMERICAN OVERSIGHT

challenge resilience. As demonstrated through recent "Hot Topic" comments from States, Transmission Owners, and other diverse stakeholders submitted to MISO's Advisory Committee, resilience is being addressed in a cross-functional manner across the region. To the extent the Commission is interested in addressing concerns at the distribution level, the Commission should continue working in partnership with State regulators (similar to the upcoming Distributed Energy Resource technical conference) to help ensure a coordinated effort.

- **Enhanced Inter-Regional Operations to Increase Event Response Capabilities**

  MISO urges the Commission to consider enhancements to inter-regional operations processes that will help support grid resilience. Further efforts are necessary to ensure that artificial barriers that may affect inter-regional transactions do not adversely affect resilient grid operations. Improving congestion management processes and visibility tools will not only support seams between neighboring system operators but also will promote the Commission's resilience efforts.

  Broader introduction of advanced operational tools could promote situational awareness and allow for better, more responsive congestion management. Current limitations in both processes and tools restrict the efficient use of transmission and redispatch opportunities to fully leverage available infrastructure. These limitations result in fewer operational options to address unplanned events that may test grid resilience. For example, as increasing levels of intermittent resources connect to the grid, hourly congestion management through the current Transmission Load Relief Process ("TLR") process will no longer be sufficient.



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

RTO/ISO energy market advancements have facilitated the development of superior market-based congestion management tools, including redispatch, seams coordination, and market-to-market processes that improve reliability and reduce costs (particularly when compared to TLR). MISO's coordination with PJM Interconnection, L.L.C. ("PJM") is a good example of a ruleset that provides mutually beneficial support built upon industry leading operational coordination. Utilization of market-based congestion management tools with PJM, in conjunction with an agreement to share contract path at the MISO-PJM border, equitably maximizes the use of the transmission system and has become the model for seams operation.

The Commission should consider opportunities to apply the MISO-PJM model to advance inter-regional operations more broadly. Continued improvements in seams coordination will help leverage the inter-regional diversity of load and supply generation to support resilient operations. MISO looks forward to working with the Commission and the industry to further discuss these opportunities for enhancements that will promote resilience.

## II. QUESTIONS

### A. Definition of Resilience

**The Commission understands resilience to mean:**

> **The ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event.**

**We seek comment from the RTOs and ISOs on our understanding of resilience as described above. We also ask for comments on whether any of the terms used above require further elaboration to ensure a common understanding (e.g., identification of the particular types of disruptive events).**



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000070

***MISO Response:***

MISO's understanding of resilience generally aligns with the Commission's proposed definition. However, to ensure that key resilience attributes are accounted for and addressed in identifying and mitigating resilience risks, the Commission's definition of resilience should be broadened in scope to acknowledge the changing nature of the electric grid. The definition of resilience should encompass the ability to not only withstand specific disruptive events, but also, include the ability to adapt to ongoing changes and supply portfolio evolution to ensure that grid performance remains reliable.

Specifically, resource adequacy, system reliability, and flexibility are essential qualities that enable the electric supply systems to support system demand. MISO continues to plan for and address the changing resource portfolio and technology evolution by anticipating future challenges that are on the horizon. For example, as wind generation resources increased over the last eight years, MISO has recognized the need to be able to reduce wind output with the appropriate price signal to manage congestion on the transmission system. Understanding these changes, a Dispatchable Intermittent Resource capability product was developed when the installed wind capacity in MISO was 4,000-6,000 MW to provide the necessary operational flexibility. This advanced recognition has proven to be an effective and efficient means of congestion management as installed wind capacity has now grown to over 17,000 MW.

While resource adequacy and reliability are maintained through well-established criteria and processes, resilience involves a more sophisticated evaluation of risks and benefits associated with disruptions arising from natural and man-made events. Resilience should include the ability of the grid to provide sufficient flexibility to accommodate resource portfolio changes over time driven by economics, technology advances, and energy policy.



AMERICAN OVERSIGHT

Turning to the Commission's request for the identification of particular types of disruptive events, MISO's definition includes ongoing stressors (e.g., portfolio evolution, operational flexibility) and captures industry challenges including, but not limited to:

- Extreme weather events
- Unique geological characteristics
- Geographic variations, including load pockets and interconnection boundaries
- Fuel supply, including gas and coal transportation delivery issues
- Cyber security risks
- Seasonal resource variations and operational needs
- Loss of load risks and expectations

MISO continues to actively address ongoing resilience risks and, as explained in more detail below, believes there is continued opportunity for improvement in several areas including interregional operations, transmission planning processes, and through CIP standards.

**B. How MISO Assesses Threats to Resilience**

**(a) What are the primary risks to resilience in your region from both naturally occurring and man-made threats? How do you identify them? Are they short-, mid-, or long-term challenges?**

***MISO Response***

MISO identifies, addresses, and responds to risks related to the supply and delivery of energy in a holistic manner through well-designed systems and clearly defined procedures across all facets of the organization including operations, markets, infrastructure, and planning. These cross-functional efforts position MISO to address current and future risks to grid supply and performance, including cyber-attacks, physical security, fuel supply disruptions, weather driven events, system component failures, and evolving resource portfolios. While all of these events



AMERICAN OVERSIGHT

are credible threats to resilience, MISO does not have any imminent or immediate resilience concerns.

Primary risks to resilience in the MISO region may be both naturally occurring and man-made threats. Naturally occurring threats include hurricanes, ice storms, extreme cold, flooding, tornadoes, and potential geomagnetic disturbances and earthquakes. As the expanse of MISO's geographic region spans three time zones and extends from New Orleans, Louisiana at 30 degrees north latitude, to Winnipeg, Manitoba at 55 degrees north latitude, it is possible to experience multiple naturally occurring events at the same time. Man-made threats include possible electro-magnetic pulse from nuclear attacks, physical attacks, cyber-attacks, and problems in other critical infrastructures.

As described below, MISO has many processes and programs in place that identify risks to resilience across its region. Among naturally occurring and man-made threats to resilience, MISO has identified the following areas as potential challenges in the short, mid, and long-term: communications, natural disasters, evolving resource and technological changes, and physical facility and cyber risks.

***Communications Interruptions***

Communication is essential to ensuring grid resilience. Man-made interruptions to communications programs and protocols both within MISO, as well as with its members, States, and neighboring systems, are a credible resilience risk. Recognizing the highly integrated nature of the energy sector with the telecommunications sector, MISO has held closed discussions with the Local Balancing Authorities and Transmission Operators on current capabilities and opportunities to improve response capabilities. Risks from communications interruptions could impact multiple Balancing Authorities simultaneously. MISO continues to monitor ongoing



AMERICAN OVERSIGHT

research being conducted by Electric Power Research Institute ("EPRI") and the Electric Infrastructure Security Council ("EISC") around communication alternatives for voice and data.

***Natural Disasters***

Natural threats include both short-term and long-term resilience risks. In 2017, the MISO region was exposed to a number of natural disasters, including Hurricane Harvey and Tropical Storm Cindy. Natural risks, while unpredictable, are foreseeable events that MISO continues to plan for and address in its resilience risk management processes. Many entities play a role in responding to natural events. In addition to MISO, State authorities, distribution providers, and generation owners have key roles in responding to high-impact events. MISO coordinates activities affecting the Bulk Electric System during natural disasters (e.g., interconnection of islanded areas) while the repair of substations, generation equipment and distribution lines are typically handled by the transmission operator, generation owner, and/or distribution provider.

Natural gas supply may also be impacted by natural disasters. MISO's reliance on gas-fired generation has grown significantly in recent years. In 2014, following the integration of the MISO South region, gas-fired generation increased to 18 percent of energy produced. By 2016 this percentage increased to 27 percent. The percentage of these resources is likely to further increase, with over 8,000 MW of gas-fired generation in the advanced stages of MISO's generator interconnection queue. While MISO's geographic scope and position makes natural gas supply interruptions from natural disasters a lower-probability risk, MISO continues to advance gas-electric coordination in operations, markets, and planning. These important efforts will continue as gas-fired generation resources enter the region and serve as a critical source of supply flexibility, particularly in severe weather situations.



AMERICAN OVERSIGHT

***Changing resource portfolio and technological advances***

Medium to long-term challenges include having the right products in place to support the evolving portfolio and technology changes. Various policies at the State and Federal level, coupled with the expedient rate of technological improvements, are driving the rate of change to the portfolio. Different regions will likely have distinct resource portfolios based on both geographic/population characteristics and technological investments. The regions may need to introduce different products to be prepared to operate the grid of the future to address regional differences. MISO's continued markets structure, which co-optimizes energy and ancillary services, will be critical to addressing the changing resource portfolio brought on by new technologies and state policies.

***Physical facility and cyber threats***

Physical facility and cyber threats reflect a short-term threat and will likely need to be protected against on both a mid-term and long-term basis. The risk of internal threats include: loss of redundancy at both our primary and backup sites; cybersecurity threats, both internal and external, and; human error and/or sabotage.

MISO actively mitigates these threats through its internal processes and protections. Built-in redundancies protect MISO's physical facilities from resilience risks. To protect against cyber risks, MISO maintains a cyber operations team to monitor critical systems daily for Indicators of Compromise ("IOC"). All cyber alerts and events are coordinated through a central management console.

To mitigate threats from human error, MISO mandates that all system changes are managed through a change and configuration management program. Training for operators on procedures, standards, and drills all contribute to reducing the risk of human error incidents.



AMERICAN OVERSIGHT

Event reviews are conducted regardless of whether there is human error, in order to develop lessons learned and identify mitigation activities that minimize reoccurrences.

**(b) How do you assess the impact and likelihood of resilience risks?**

***MISO Response***

The MISO region is undergoing a significant transformation in its resource portfolio due to a combination of factors including federal and state policies, economics, evolving technologies and consumer preferences. The trends indicate a shift to increased amounts of variable energy resources, both on the Bulk Electric System and at lower sub-transmission and distribution voltages, as well as a reduction in traditional base load resources designed to meet energy and capacity needs. As this new model emerges, MISO is planning for a transmission system that is fundamentally more flexible to support an increasingly diverse set of resource types.

Through the annual MTEP process, consistent with the MISO Tariff[3] and the requirements of FERC Order 1000, MISO seeks to identify the set of local and regional transmission solutions that, when taken together ensure the reliable and resilient operation of the transmission system; support achievement of state and federal energy policy requirements; and enable a competitive electricity market to benefit all customers.

MISO's open, transparent, and collaborative planning process continuously evaluates potential disruptions and their impact on the grid's ability to meet demand. Although the exact future resource mix remains uncertain, MISO uses its value-based planning approach to proactively identify infrastructure that is valuable under a number of long-term future scenarios

[3] MISO's Open Access Transmission, Energy and Operating Reserve Markets Tariff ("Tariff" or "MISO Tariff").



AMERICAN OVERSIGHT

reflecting a wide range of potential resource portfolios. It is critical to identify necessary and efficient investment despite the uncertainty, particularly given the long lead time typically needed to plan, approve and construct regional transmission solutions. Regional analyses, taken together with analysis of near-term reliability needs that include assessment of extreme events, analysis of transmission needed to support resources joining and leaving the system, and identification of local system needs, provide a strong foundation to ensure that MISO has a transmission system that continues to meet customer needs in the future.

MISO also regularly conducts analyses to understand the impacts on both the grid and the MISO markets of resource changes over time. A current effort, the Renewable Integration Impact Analysis ("RIIA"), seeks to quantify the impacts of increased levels of renewable resource s and understand the ability of the grid to accommodate these changes. The RIIA will facilitate broader conversations around renewable energy impacts on the reliability of the electric system. Research and development efforts will identify technically rigorous, concrete examples of integration issues and examine potential solutions to mitigate them. Further, MISO's Market Roadmap will allow potential resilience solutions that provide the most value (and can be implemented in a cost-effective manner) to be prioritized over more costly alternatives.

Other risks are addressed through MISO's mature Enterprise Risk Management ("ERM") program. The ERM program helps to identify, assess, respond, and report on its high-level risks. Specific risk criteria have been developed to assess potential risk impacts and the likelihood of events. Risks are evaluated according to their impact to: operations, stakeholders, financials, regulatory constructs, and employees. Other factors that are analyzed when determining risk impacts include the complexity, velocity, and persistence of the risk as well as MISO's adaptability and ability to recover from a major risk event. The likelihood of risks is assessed



AMERICAN OVERSIGHT

based on the probability that they occur over a five-year future time horizon. MISO closely monitors its risk register on a routine basis. Examples of matters on the risk register include cyber security, portfolio evolution, and event-driven grid reliability. During the risk assessment process MISO identifies the key internal and external factors driving the risks, determines the appropriate risk response and treatment activities, and assigns ownership for these treatment activities. The ERM program has touchpoints throughout the organization and regular reporting to executive leadership.

Risks are also identified through lessons-learned processes and prior experiences. Previous experiences with the Polar Vortex and other extreme weather events, and post-event analysis allow MISO to better understand the risk likelihood and impact of reliability and resilience risk. In addition, MISO leverages neighboring entities' experience to gain risk treatment planning insight. Gas and electric entities utilize NERC's Transmission System Planning Performance ("TPL") standards to assess and consider a wide range of probable contingencies. MISO continues to actively coordinate with our stakeholders and leverage ERMs to evaluate the probability and risk associated with potential events.

**(c) Please explain how you identify and plan for risks associated with high-impact, low-frequency events (e.g., physical and cyber attacks, accidents, extended fuel supply disruptions, or extreme weather events). Please discuss the challenges you face in trying to assess the impact and likelihood of high-impact, low-frequency risks. In addition, please describe what additional information, if any, would be helpful in assessing the impact and likelihood of such risks.**

***MISO Response***

MISO has ongoing processes in place to identify and plan for high-impact, low-frequency events. As a result of these deliberate planning processes, MISO is well-positioned to assess the impact and likelihood of these risks. However, MISO notes that access to additional information, including information across related industry sectors, would further improve these processes. For



AMERICAN OVERSIGHT

example, access to additional information used to study gas pipeline contingency risks would help improve MISO's current modeling processes.

***Identifying and Planning for Risks***

To identify and plan for high-impact, low-frequency events, MISO routinely tests its transmission system for its response to severe events. As a part of the annual planning process, MISO evaluates approximately 6,500 extreme events impacting loss of multiple facilities on the transmission grid. MISO collaborates with Transmission Owning members to select events each year. MISO's extreme event analysis includes events involving:

- Loss of all circuits on a multi-circuit right-of-way
- Loss of three or more circuits on a common transmission tower
- Loss of all facilities at a switching station or a load service substation
- Loss of all generating units at a multiple unit generating station
- Loss of all generating units at two independent generating stations
- Loss of gas pipeline segments and all generation served by the pipeline

Specifically, in terms of gas pipeline reviews, MISO typically evaluates between 20 and 30 gas pipeline outages each planning cycle. Events are evaluated to determine the amount of load loss expected resulting from the event, and to determine if the event results in system instability or cascading loss of facilities and load. In addition to the events mentioned above, MISO is performing a review of its gas pipeline contingency set to determine whether analysis of additional events should be increased. MISO is also working to increase its understanding of the time-domain impacts of pipeline outages (i.e., after a pipeline contingency occurs, what are the impacts 5-minutes later, 1-hour later, 1-day later, 1-month later).



AMERICAN OVERSIGHT

While NERC's Transmission Planning Standards do not require mitigation of load loss resulting from events classified as extreme events, MISO presents summaries of these events to stakeholders, including state regulatory staffs, at the Sub-regional Planning Meetings ("SPM") that are a part of MISO's open and transparent annual reliability planning process. These meetings provide MISO stakeholders, including State regulatory bodies, with the opportunity to better understand resilience risks and consider industry best practices in a collaborative manner.

To prepare for risks associated with low-frequency, high-impact events, MISO also maintains disaster recovery plans, business continuity plans, and an overarching crisis management plan to ensure MISO can recover from a significant event.[4] These plans are reviewed and exercised at least annually and are able to leverage real world scenarios based on current high-risk events. In addition, critical system transfers are performed several times a year between our primary and backup site to ensure operations continue at either location with no degradation. Each of these activities help to mitigate our overall risk associated with high-impact, low-frequency events.

Further, MISO routinely holds system restoration drills and hurricane preparedness drills which allow MISO, Local Balancing Areas, and Transmission Operators to identify risks and areas for improvement while running the drills. These drills are also utilized to better understand cyber threats. MISO maintains a formalized cyber security incident response plan that is tested annually through paper drills and participation in NERC activities.

More specifically, NERC's nationwide GridEx drill and the Federal Emergency Management Agency's ("FEMA") regional drills which cross critical infrastructures are very valuable in recognizing potential cross-sector issues. Simulation based drills are important for

[4] Disaster recovery and business continue plans are required under NERC Reliability Standards.



AMERICAN OVERSIGHT

the industry to practice and identify response improvement. We strongly encourage FEMA and NERC to continue the valuable opportunities that helps grid operators and utilities prepare for, and respond to, high-impact, low-frequency events.

***Addressing Challenges***

MISO has not experienced significant challenges in assessing extreme event impacts in the planning timeframe. Member Transmission Owners collaborate with MISO in developing events to be reviewed. Beyond the assessment of event impacts, a more significant challenge is quantifying the risk and benefits associated with mitigating events with very low probabilities, but potentially high costs, to customers of such disruptions. MISO believes that each region has its own unique set of events that pose the most likely threats to resilience. As a result, regional stakeholders should continue to be engaged in determining which threats and consequences are appropriate to be mitigated and what costs should be incurred to do so. In this regard MISO continues to ensure that regional stakeholders are aware of the consequences to the grid and loss of load service that could result from such events.

**(d) Should each RTO/ISO be required to identify resilience needs by assessing its portfolio of resources against contingencies that could result in the loss or unavailability of key infrastructure and systems? For example, should RTOs/ISOs identify as a resilience threat the potential for multiple outages that are correlated with each other, such as if a group of generators share a common mode of failure (e.g., , a correlated generator outage event, such as a wide-scale disruption to fuel supply that could result in outages of a greater number of generating facilities)? The RTOs/ISOs should also discuss resilience threats other than through a correlated outage approach. Do RTOs/ISOs currently consider these types of possibilities, and if so, how is this information used?**

***MISO Response***

As part of MISO's core operations and planning programs, MISO is already identifying resilience needs against contingencies that could result in the loss or unavailability of key infrastructure and systems. MISO has many ongoing initiatives that identify threats to resilience



AMERICAN OVERSIGHT

as well as support measures that plan for system contingencies that could impact system reliability. Commission directives have provided MISO with the tools to address resilience, including the planning assessments of the ability of the grid to withstand severe events (including impacts to gas-electric coordination). Generally, assessments are included in the overall planning responsibilities of RTO/ISOs (as promulgated in Orders 2000, 890, and 1000) as well as in the current NERC Planning Standards requirements. Additional Commission dialogue on these issues may allow for more robust data collection opportunities for RTOs/ISOs.

NERC Standards requiring system assessments in planning and operating horizons effectively support resilience and consider risks of multiple outage impacts. Specifically, system operating limit methodologies focus on a broad set of contingencies, including correlated outages and wide-scale disruption that are factored into system operating limits.[5] Likewise, flowgate methodologies are able to be defined with multiple monitored elements, particularly when stability issues may arise.[6] Identified constraints are used in MISO's next-day studies to identify potential risks, as well as generation that needs to be on-line to mitigate potential thermal, voltage and/or stability issues.

Similarly, MISO has internal processes, including gas and electric pipeline monitoring protocols, which have proven effective and been successfully utilized during the cold weather snap in January 2018. MISO monitors and reports on gas pipeline critical notices and events that allow MISO to anticipate potential resource availability issues due to published flow limitations. Generation owners (or representatives) are responsible for ensuring submitted generation parameters meet performance capabilities. Individual Market Participant strategies are then used

---

[5] *See* NERC Reliability Standard FAC-001-3.

[6] *See* NERC Reliability Standard MOD-030-3.



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000082

to determine what pipeline services (i.e., Firm or Interruptible), flexible/enhanced services (non-ratable, no-notice, etc.) are subscribed.

MISO's operations processes incorporate Market Participants gas procurement strategies (Timeline, Intraday) to assess potential fuel availability risks. Resources without firm transportation or enhanced services may have difficulty procuring supply on peak operating days. Generation units that are unable to line up supply are expected to enter an outage into MISO's outage coordination tool with the appropriate code around fuel supply. The MISO commitment process includes assessments to identify and commit additional generation on-line due to any increase in reported generator outages.

Further, near-term study tools apply transmission outages and analyze the system based on the projected topology. Contingencies are studied on top of the applied topology, providing insight into areas that may need an operating guide. In the near-term, the current processes help identify risks from transmission or generation forced outages which may result from natural or man-made causes.

**(e) Identify any studies that have been conducted, are currently in progress, or are planned to be performed in the future to identify the ability of the bulk power system to withstand a high-impact, low-frequency event (e.g., physical and cyber-attacks, accidents, extended fuel supply disruptions, or extreme weather events). Please describe whether any such studies are conducted as part of a periodic review process or conducted on an as-needed basis.**[7]

***MISO Response***

From a systems operations perspective, MISO performs qualitative reviews of potential interruptions to key processes and surveys the local balancing authority areas to understand their

[7] The Commission is not directing that these studies be included in the RTO/ISO submissions filed in response to this order. Instead, the RTOs/ISOs are required to identify and describe such studies in their submissions.



AMERICAN OVERSIGHT

capabilities. MISO is currently benchmarking key processes with other RTOs/ISOs to identify potential cost-effective enhancements to further MISO's business continuity. MISO is also working to validate diversity of service providers in key utility services. To properly balance personnel resources with risk concerns, MISO typically performs these analyses on an as-needed basis.

MISO has made significant investments in resilience over the last five years. Multiple, active (staffed), control centers and data centers provide flexibility to operate in the event of a disruption. MISO has invested in dedicated cyber and physical security teams to mitigate and respond to potential threats. MISO has formally added physical and cyber security to our strategic plan. Because of the constantly changing environment, MISO assesses these risks on an ongoing process.

As noted above, MISO conducts ongoing transmission planning studies on extreme events and on future scenarios that may occur as generation resource portfolios continue to evolve. These regularly performed planning studies are supplemented with periodic targeted studies such as the RIIA addressing specific supply configurations and solutions to any limitations that might result.

Through extreme event studies that MISO conducts on an annual basis, MISO's current assessment is that natural gas pipeline contingencies do not represent an imminent or immediate resilience risk in the MISO region. Nonetheless, to better understand how an increase in natural gas resources may affect MISO's dispatch capabilities, MISO recently initiated an in-depth study to identify potential consequences that may occur in the event of natural gas pipeline contingencies. Further, MISO conducts an annual Coordinated Seasonal Assessment that includes extreme natural gas pipeline contingencies (as identified in the TPL study).



AMERICAN OVERSIGHT

Similarly, MISO participated in a study performed by the Eastern Interconnection Planning Collaborative to, among other things, determine the impacts of gas pipeline system failures on the electric system. Additionally, MISO worked closely with NERC and the Argonne National Laboratory on a Single Point of Disruption ("SPOD") analysis, investigating reliance on gas storage and other gas infrastructure to serve the needs of gas-fired generation. MISO offers High-Impact / Low-Frequency ("HILF") specific security protection and safeguards as a benefit to its members. Through participation in NERC sponsored GridEx exercises, MISO leverages industry expertise to identify and implement the appropriate security controls to protect the bulk power system.

MISO also utilizes industry best practices, including key studies and reports, that highlight opportunities to support resilience. The North American Transmission Forum ("NATF") developed the Bulk Electric Systems Operations absent Energy Management System and Supervisory Control and Data Acquisition Capabilities report. This "spare tire" report lists 11 key capabilities needed for system operations.[8] As a result of this study, MISO agrees that external voice communications represent an important resilience risk that merits additional consideration by the Commission.

In addition, the "FERC-NERC-Regional Entity Joint Renew of Restoration and Recovery Plans"[9] provided useful findings and conclusions. Specifically, the study noted that:

- All participants would remain capable of executing their restoration plan without SCADA/EMS availability.

---

[8] *See* spare tire report (http://www.natf.net/docs/natf/documents/resources/natf-bes-operations-absent-ems-and-scada-capabilities---a-spare-tire-approach.pdf).

[9] *See* https://www.ferc.gov/legal/staff-reports/2017/06-09-17-FERC-NERC-Report.pdf.



AMERICAN OVERSIGHT

- Completion of all restoration steps would be more time consuming and more involved under such conditions, especially those steps requiring a larger degree of coordination.

**(f) In these studies, what specific events and contingencies are selected, modeled, and assessed? How are these events and contingencies selected?**

***MISO Response***

In monitoring and assessing system operations, MISO and MISO members review failures of key applications at a single and multiple location(s), loss of key systems, loss of data center(s), and loss of telecommunications. The events are selected based on daily control room functions MISO provides to its members. Whether an event was externally instigated or internally instigated, the focus is on reviewing the likelihood and/or impact from an event. Personnel impacts, including pandemics, are also considered.

For gas-electric coordination assessments, MISO utilizes industry best practices and focuses on higher probability contingencies, such as loss of a single segment of pipeline or loss of a single compressor station. MISO utilizes standard P1 contingencies defined in NERC Reliability Standard TPL 001-4 in its Coordinated Seasonal Assessment and Planning Reliability studies. More comprehensive studies are being developed to help MISO address and better understand emerging issues.

For cyber-related risks, MISO leverages studies such as ICS-CERT's annual year in Review reports, as well as the Mandiant M-Trend report. The M-Trend report gives MISO an intelligence-led look into new phishing trends, new cyber security attack methodologies, as well as insights into developing modern cyber security defensive strategies. MISO studies annual reports, including Verizon's Data Breach Investigations, to identify electric industry specific impacting events. MISO also utilizes these reports to identify current and evolving threats.



AMERICAN OVERSIGHT

Utilizing lessons learned and issues raised in these studies and reports, coupled with on-going Electricity Information Sharing and Analysis Center (E-ISAC), Industrial Control Systems Cyber Security Emergency Response Team (ICS-CERT), and FBI InfraGard alerts/bulletins, MISO has implemented a continuous improvement process to evolve its existing security capabilities based on real scenarios.

In addition, MISO notes that response (c) provides additional context and information on specific events and contingencies that have been studied, modeled, and utilized to test the resilience of the regional transmission system.

**(g) What criteria (e.g., load loss (MW)), duration of load loss, vulnerability of generator outages, duration of generator outages, etc.) are used in these studies to determine if the bulk power system will reasonably be able to withstand a high-impact, low-frequency event? Are the studies based on probabilistic analyses or deterministic analyses?**

***MISO Response***

In evaluating impacts of high-impact, low-frequency events, from a planning perspective MISO studies the system for its ability to maintain stability and avoid cascading loss of facilities and load. Cascading events are determined based upon a number of factors including: the number of facilities that exceed safe design ratings; events that results in loss of 1,000 MW or more of load, or; that otherwise demonstrate system instability in which loss of load is more difficult to predict but can be substantial.

For system operations, MISO's study criterion considers reliability, regulations, financial exposure, and people (internal and external). On a daily basis, MISO's operations engineers perform power flow-based Interconnection Reliability Operating Limit ("IROL") studies focusing on identification and mitigation of potential cascading events in response to a forced



AMERICAN OVERSIGHT

outage of a bulk electric system element. The intent is to make certain that MISO is prepared for the next event that may impact the bulk power system.

Events are deterministically selected based on guidance from NERC Standards and by operator experiences and judgment that balance the magnitude and impact of such a risk with MISO's operations. MISO has considered further development of probabilistic contingency evaluation techniques; however, these methods often prove difficult to apply to extreme events unrelated to component failure probabilities, including severe weather or man-made events.

**(h) Do any studies that you have conducted indicate whether the bulk power system is able to reasonably withstand a high-impact, low frequency event? If so, please describe any actions you have taken or are planning as mitigation, and whether additional actions are needed.**

***MISO Response***

As described above, MISO's studies of extreme events are evaluated for impact on grid performance and load serving capability. The vast majority of events do not indicate system instability or cascading failures would occur. Notably, none of the gas pipeline failure simulations indicated reliability limitations due to transmission grid inadequacies or loss of load risk above the 1-day-in-10 years planning criteria due to resource inadequacy. Only in one scenario, under the extreme and long-term event of the loss of the largest natural gas pipeline for the entire summer peak season, was a slightly elevated regional loss of load risk observed.

Benchmarking potential methods to further mitigate risk to key processes is occurring with stakeholders in a closed working group. MISO is working to validate communication diversity through the utilization of multiple communication providers consistent with utility best practices. Further, MISO is following research being conducting by the EIS Council and EPRI around the Black Sky Emergency Communication and Coordination System ("BSX"). The BSX may mitigate the unavailability of the communication backbone.



AMERICAN OVERSIGHT

In addition to those studies, MISO utilizes simulation based training for itself and members as part of its power system restoration drills and hurricane preparedness drills. This simulation based training was also use for the control room as part of the GridEx IV exercise. To enhance the training to include other resilience risks, MISO has expanded participation to include positions beyond reliability coordinator and cybersecurity. Further, MISO plans to include the market operation positions in its next hurricane drill, which is conducted on an annual basis.

MISO's ongoing training is necessary to enable better response and communication as conditions continue to change and evolve. MISO stakeholders are actively engaged in mitigation planning, and have identified numerous touchpoints between the broader industry and government agencies. As identified by the Electricity Subsector Coordinating Council, twenty-one different entities may be involved in a multi-state event. Clear rules exist on expectations for reporting to DOE, FERC, NERC and the RTO/ISO. Large-scale gas contingencies impacting an entire pipeline have not been explicitly analyzed, though many smaller scale gas contingences have been reviewed.

Additional clarity from the Commission on how coordination is addressed at the national level amongst federal agencies would be beneficial for Balancing Authorities. Currently, it is unclear which federal entities should be contacted in the event of an incident or potential risks related to incidents. MISO urges the Commission to consider opportunities to partner with other federal agencies to provide proactive guidance on federal agencies that should be included to help streamline event coordination.

**(i) How do you determine whether the threats from severe disturbances, such as those from low probability, high impact events require mitigation? Please describe any approaches or criteria you currently use or otherwise believe are useful in determining whether certain threats require mitigation.**



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000089

***MISO Response***

To determine whether potential threats may require mitigation, MISO applies a risk framework that utilizes qualitative criteria to predict risk impact and likelihood. These items are incorporated into a heat map that depicts events with the highest potential risk. MISO also reviews benefits associated with the interconnected nature of the transmission system.

As explained above, MISO continuously reviews high-impact, low-frequency events and looks for opportunities to improve. Communication with the impacted transmission operator increases as an event occurs. MISO actively takes steps to prepare for an event, such as hurricanes, where advanced notice exists. Distribution system operators perform the bulk of the restoration activities with MISO providing oversight when the restored area is ready to interconnect. MISO applies the requirements of the NERC standards along with discussion with regional stakeholders to determine mitigation steps. This includes NERC TPL-001-4 Extreme Event analysis and CIP-00-14 Physical Security evaluations for which MISO provides independent review of the critical transmission facility analyses performed by member transmission owners.

**(j) How do you evaluate whether further steps are needed to ensure that the system is capable of withstanding or reducing the magnitude of these high-impact, low frequency events?**

***MISO Response***

High-impact, low-frequency events are continually evaluated within the MTEP planning process to ensure that actual and projected changes to the system do not result in unanticipated impacts to the system. Nonetheless, evaluating whether further steps are necessary to ensure the system is capable of withstanding or reducing the magnitude of these high-impact, low-frequency events is challenging. In certain situations, the system may not be capable of



AMERICAN OVERSIGHT

withstanding the event without some loss of load. Hurricanes, tornadoes and ice storms likely will harm the transmission and distribution system. Reducing the impact of the high-impact, low-frequency event is accomplished by learning from the event and implementing techniques that lessen the impact of future risks.

**(k) What attributes of the bulk power system contribute to resilience? How do you evaluate whether specific components of the bulk power system contribute to system resilience? What component-level characteristic, such as useful life or emergency ratings, support resilience at the system level?**

***MISO Response***

MISO agrees that there are many components and system level characteristics designed into the electric power system that support resilience. These components work in aggregate to allow the system to withstand the vast majority of high-impact, low-frequency events. At the component level, protection systems are specifically designed to clear system failures at high speed, with high availability, before system faults escalate into additional component failures, including machine or system instabilities. Reclosing schemes enable immediate restoration of faulted transmission facilities associated with temporary fault events. Redundant and back-up protection schemes anticipate component failures in their design. In some cases Special Protection Systems are employed that provide additional protection for lower frequency events and involve automated corrective actions remote from the direct facility under fault conditions. Other protection schemes such as "under voltage" and "under frequency" provide for controlled fast automatic reductions of selected loads to mitigate the extent of more severe low frequency events.

Transmission facilities, including transmission lines, are generally designed with ratings that provide considerable margin to protect against loading levels that trigger catastrophic stability and/or cascading issues. System design factors in multiple critical element failures



AMERICAN OVERSIGHT

affecting the same load area at the most critical load levels as a means of building "withstand" capability into overall system design.

In addition to the transmission component and design features that support resilience, generation supply plays a key role. The location of Fast Start generating facilities in high load areas can reduce stress on the transmission system during times of critical generator outages. Fuel diversity within market resources, together with geographical diversity of resources, mitigates events impacting specific fuel resources or geographic areas. Resource planning reserve margins based loss of load expectation criteria, together with planning for deliverability of all network resources, ensures robustness of supplies against greater than typical forced outage conditions. In the event that a large area of the system loses load, Black Start plans and procedures are in place and reviewed for effectiveness in re-energizing those areas.

At the system level, the integrated nature of the bulk power system helps support resilience. Since the bulk power system is a synchronous interconnected system, generation units with governor response throughout the Eastern Interconnection provide primary frequency response to assist in managing the frequency of the system. Coordination in the planning and operation of the bulk power system, including visibility into the status, flows and response of the equipment in the field all strengthens system resilience to a risk event. Operating reserves provide the capability to respond to unanticipated events in a timely manner. Emergency ratings and ramp capability, including the ability to order off-line generation (or shed load) provide operational flexibility that supports shared resilience objectives.

Synchrophasor information has been beneficial in understanding the dynamic and transient behavior of the bulk power system. MISO is improving its dynamic modeling information by comparing actual performance information to modeled performance. Specifically,



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000092

MISO is refining details within its dynamic modeling to reflect current performance in the field. Improved modeling performance will help MISO better predict possible voltage or transient issues. Further, these improvements will support operating plans to reduce the possible impact of the voltage or transient issue.

**(l) If applicable, how do you determine the quantity and type of bulk power system physical asset attributes needed to support resilience? Please include, if applicable, what engineering and design requirements, and equipment standards you currently have in place to support resilience? Are those engineering and design requirements designed to address high-impact, low-frequency events? Do these requirements change by location or other factors?**

***MISO Response***

MISO's member asset owners are responsible for the design standards applicable to their transmission and generation equipment. MISO supports system design through analysis and planning of the aggregate transmission system in accordance with applicable local, regional, and national standards. Accordingly, MISO focuses on essential reliability services rather than physical resource attributes.

**(m) To what extent do you consider whether specific challenges to resilience, such as extreme weather, drought, and physical or cyber threats, affect various generation technologies differently? If applicable, please explain how the different generation technologies used in your system perform in the face of these challenges.**

***MISO Response***

Extreme weather affects various generation technologies differently. Very hot summer days can impact coal and gas generation differently than renewable generation. Large generation units located on rivers may need to limit output to avoid releasing water that is too warm into the river. Droughts may impact run of the river hydro as well as generation units located on rivers, as opposed to wind or solar facilities.



AMERICAN OVERSIGHT

Cold weather may result in non-firm gas being unavailable to purchase resulting in gas generator(s) outage or switching to alternate fuel. Wind turbines may be exposed to icing and unable to generate. As a result, many wind generation resources have installed cold weather packages to be able to operate in extreme cold. High wind may result in over-speed conditions where the wind generation is taken off-line MISO considers each of these differing impacts in preparing the system for resilient operation during critical system conditions.

MISO conducts a winter generator fuel survey and holds an annual winter readiness workshop in addition to summer readiness efforts. This survey focuses on fuel supply and supports a better understanding of existing fuel supply contracts that are in place as well as a common understanding of the status of generation prior to the winter season. MISO also receives icing predictions from wind forecast providers.

**(n) To what extent are the challenges to the resilience of the bulk power system associated with the transmission system or distribution systems, rather than electric generation, and what could be done to further protect the transmission system from these challenges?**

***MISO Response***

Generation, transmission and distribution systems must work together to provide electricity to end-use customers. Overhead transmission and distribution lines are exposed to high winds, extreme cold (including ice), physical threats and cyber threats. Underground facilities are susceptible to flooding, physical threats, cyber threats, longer restoration times, and higher failure rates due to the need for continuous cable insulation systems. Reviewing the performance of all of the components of the bulk power system following a threat and implementing improvements will strengthen the capability of the bulk power system. The review should consider critical infrastructure performance such as energy management systems, telecommunications, firewalls, and emergency services.



AMERICAN OVERSIGHT

The vast majority of loss of load events and cumulative interruption time per customer or megawatt are associated with the distribution system. While far fewer events are caused by disruptions to the transmission system, transmission disruptions may cause more widespread outage impacts when transmission outages do occur. As noted in comments submitted by the Organization of MISO States ("OMS") to MISO's Advisory Committee, resilience issues are likely to originate within state and local distribution systems.[10] State and local regulators continue to address resilience risks that are more prone to occur on the distribution system. The Commission should continue to engage with State and local regulators, including the OMS and the National Association of Regulatory Utility Commissioners, on these resilience risks.

**(o) Over what time horizon should the resilience assessments discussed above be conducted, and how frequently should RTOs/ISOs conduct such an analysis? How could these studies inform planning or operations?**

***MISO Response***

MISO performs extreme event analysis annually as described in response (c). In addition to the risks identified in MISO's risk register that are being closely monitored on a routine basis, MISO evaluates system performance impacts of extreme events for near, intermediate and longer term horizons – typically 2, 5, and 10 years forward. Results of these evaluations inform impacted stakeholders of the extent of the impact of such events. Additional dialogue is needed with regional stakeholders and State regulatory bodies, on the cost and value of mitigating low-frequency events.

Following large natural or man-made events, MISO conducts post event assessments to facilitate lessons learned. These reviews help identify potential areas for improvement. The

[10] Organization of MISO States "Hot Topic" Response (February 28, 2018) https://cdn.misoenergy.org/20180328%20AC%20Item%2002%20OMS%20Hot%20Topic%20Comments139611.pdf.



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000095

broader energy industry has been especially collaborative in sharing information and lessons learned, to help build a more resilient bulk power system. For example, NATF and NERC's "Lessons Learned" provide avenues to identify improvements and best practices that anticipate, absorb, adapt to, and/or rapidly recover from future events.

As previously discussed, MISO's winter readiness generator survey supports MISO's planning and operations prior to the winter season. Similarly, ad-hoc generator surveys ahead of forecasted extreme weather provide operations with transparency around resource fuel availability and generator preparedness. With high-impact seasonal events including hurricanes and winter icing, communication between MISO and the transmission operator increases to help inform planning and operations. However, MISO notes that much of the responsibilities around hurricane and seasonal weather planning rest with local utilities and State agencies.

**(p) How do you coordinate with other RTOs/ISOs, Planning Coordinators, and other relevant stakeholders to identify potential resilience threats and mitigation needs?**

***MISO Response***

MISO has many touch points with neighboring regions, including national forums, to share views on risks and assessments of threats. MISO coordinates planning issues, reviews, and assessments under Joint Operating Agreements with neighboring entities on a continuous basis. Best practices are shared amongst RTOs and ISOs through the ISO/RTO Council, industry-wide through the NATF. The NATF's vision is to promote excellence in the reliable and resilient operation of the electric transmission system. Current NATF initiatives include resilience (GMD, EMP, security), operations, 345 kV breakers, Minimum Vegetation Clearance Distance ("MVCD"), and human performance near-miss reporting. In addition, MISO participates in the Eastern Interconnection Planning Collaborative that coordinates planning models and issues



AMERICAN OVERSIGHT

reviews for the interconnection. MISO also participated in the Single Point of Disruption ("SPOD") analysis performed by NERC and the Argonne National Laboratory.

Other industry best practices are achieved through participation in reliability peer groups. Coordination with our Regional Entities, Midwest Reliability Organization ("MRO"), Reliability First ("RF"), and SERC Reliability Corporation ("SERC"), helps promote and facilitate effective communication of potential threats and concerns. MISO actively participates in electric sector events hosted by Regional Entities. Likewise, MISO actively partners with neighboring RTOs/ISOs to share in best practices and collaborate on lessons learned following an event. Former, MISO participates in security working groups and executive forums to stay abreast of current threats and mitigation options.

Identification of resilience threats and mitigation needs are often discovered through simulation and drills. Simulation-based training is paramount to planning for risks associated with high-impact, low-frequency events. MISO hosts hurricane preparedness drills using simulator-based tools with the Transmission Owners and Local Balancing Areas to help the MISO community to be better prepared for an event. NERC-sponsored GridEx drills are a very important source of identifying potential risks and areas for improvement. Summer and winter readiness drills include MISO, MISO members, State regulators, and neighboring RTO/ISOs.

**(q) Are there obstacles to obtaining the information necessary to assess threats to resilience? Is there a role for the Commission in addressing those obstacles?**

***MISO Response***

MISO utilizes industry best practices and has generally been successful in obtaining sufficient data to protect against resilience risks. Information is obtained through coordination with grid planners, operators, and other stakeholders. These system analyses are able to identify system failure modes that are representative of historic and projected low frequency failure



AMERICAN OVERSIGHT

modes. Even with this information, it is sometimes challenging to weigh the costs of mitigating certain risks with preventative benefits.

While these processes have been effective at gathering information, there are still obstacles present that make it more difficult to obtain additional information that would be beneficial to assessing resilience threats. Obstacles include the ability to share relevant information between critical infrastructures and with the federal government. As commonly discussed in gas-electric coordination forums, the approach taken to model electrical system problems does not translate directly to gas infrastructure. Developing a common understanding of issues and being able to communicate more effectively will facilitate access to valuable data that can help assess resilience risks.

Gathering data for modeling risk scenarios will also be beneficial to assessing resilience risks. There is no common topology information for pipeline modeling across the industry, nor is there a uniform post event reporting requirement. A process similar to the NERC Multi-Area Modeling Working Group ("MMWG") modeling process that unifies modeling to create baselines would be extremely helpful. The MMWG process would involve a gas industry-wide effort to develop a standardized gas pipeline system model to be used in reliability analyses. Gas industry participants would submit standardized modeling data for their system, so that the gas and electric industries would have an off-the-shelf base case model to perform reliability analyses.

The Commission's Office of Energy Infrastructure Security has been helpful in addressing some of these obstacles by facilitating collaboration between federal, state and industry in identification and communication of risks and vulnerabilities. Nonetheless, challenges still exist in developing holistic processes that protect sensitive information while



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000098

enabling the necessary personnel with tools to develop robust plans with the relevant prioritization.

**(r) Have you performed after-the-fact analyses of any high-impact, low-frequency events experienced in the past on your system? If so, please describe any recommendations in your analyses and whether they have or have not been implemented.**

***MISO Response***

Yes. Following the 2014 Polar Vortex, MISO collaborated with stakeholders through its Electric and Natural Gas Coordination Task Force to produce an issue summary paper.[11] This paper documented MISO and stakeholder observations, challenges, and lessons learned.

Lessons learned from the 2014 Polar Vortex have been implemented and resulted in MISO being better prepared for the extreme cold snap that occurred in January 2018. These lessons facilitated the establishment of an internal gas/electric team that has been collaborating with stakeholders and the industry to increase MISO (and the pipelines) situational awareness and ability to respond. MISO has started reviewing the January 2018 cold weather information to identify opportunities for improvement.

In addition, NERC and industry members have processes in place and participate in analysis of high-impact, low-frequency events that have resulted in NERC Standard Authorization Requests ("SAR") to resolve any gaps in reliability standards that may have contributed to these events. MISO participates in the NERC Standards development process to help improve grid reliability and resilience.

---

[11] *See* 20141009 ENGCTF Issue Summary Paper - Polar Vortex, MISO and Stakeholder Polar Vortex Experiences with Natural Gas Availability and Enhanced RTO/Pipeline Communication. https://www.misoenergy.org/stakeholder-engagement/committees/retired-committees/#/entityname|ENGTF/year|2014.



AMERICAN OVERSIGHT

**(s) Please provide any other information that you believe the Commission would find helpful in its evaluation of the resilience of the RTO/ISO systems.**

***MISO Response***

RTOs/ISOs, including MISO, have realized FERC's vision of efficient and open access of the transmission system as memorialized in Order No. 2000. End-use consumers of entities participating in RTOs/ISOs are enjoying numerous benefits, including: improved efficiencies in transmission grid management through improved pricing and congestion management; improved parallel flow management; more efficient planning; improved reliability; improved market performance; and lighter handed regulation.[12] The scope and configuration achieved by the current RTOs/ISOs, including MISO, have exceeded that vision, unlocking billions in annual benefits to our membership through enhanced reliability, more efficient use of existing transmission and generation assets, reduced need for new assets, and region-wide grid planning and management. MISO's regional scope provides resilience as described in a 2015 Lloyd's of London report on the risks of a cyber-attack on the U.S. power grid:[13]

> Regional resilience of grid - The disruption of power delivery in the US cannot be achieved by disabling a single generator. The grid system compensates for losses in generating capacity and manages considerable variation in capacity at any one time, through load balancing and importing power from neighbouring regions via market mechanisms. The regional structure of the US electricity market makes it resilient.

The Commission has been very supportive of the RTO/ISO and NERC efforts on resilience. Assisting the RTOs/ISOs as they consider resilience processes from an interconnection perspective will only make the community stronger. Requesting relevant natural gas subsector information and other critical infrastructure considerations will be important next

---

[12] *Regional Transmission Organizations,* Order No. 2000, FERC Stats. & Regs. ¶ 31,089 (1999).

[13] *See* Lloyd's Emerging Risk Report 2015. https://www.lloyds.com/~/media/files/news-and-insight/risk-insight/2015/business-blackout/business-blackout20150708.pdf.



AMERICAN OVERSIGHT

steps. Communications, energy, and water are all considered lifeline critical infrastructures and need to work together to improve resilience.

**C. How MISO Mitigates Threats to Resilience**

**(a) Describe any existing operational policies or procedures you have in place to address specific identified threats to bulk power system resilience within your region. Identify each resilience threat (e.g., the potential for correlated generator outage events) and any operational policies and procedures to address the threat. Describe how these policies or procedures were developed in order to ensure their effectiveness in mitigating the identified risks and also describe any historical circumstances where you implemented these policies or procedures.**

***MISO Response***

MISO has developed and enhanced many policies and procedures as part of its ongoing resilience assessment. Various threats to bulk power system resilience, whether physical security, cyber security, natural gas-electric coordination, or hurricane preparedness, each have a policy and/or procedure for use by control center operators and other MISO personnel. System threat protocols are reviewed and updated on a periodic basis. Training sessions, including drills and readiness workshops, are provided to stakeholders along with a comprehensive set of protocols to communicate and coordinate with state regulators. Readiness drills typically use the Dispatch Training Simulator and other simulator tools to enhance the participant experience. In addition to the above mentioned readiness drills, MISO participates in national resilience drills including GridEx.

These drills are not only beneficial to understanding physical threats but also cyber risks. Cyber threats are mitigated using a formalized cyber security incident response plan. MISO's cyber security incident response plan is tested annually through paper drills and participation in activities. When a resilience event occurs (e.g., capacity emergency, hurricane, loss of real-time monitoring tool, etc.) MISO performs an event review, which includes root cause analysis (if



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000101

applicable), procedure review and updating, and sharing lessons learned. MISO also participates in NERC's voluntary Event Analysis Program, which facilities industry-wide information exchange in order to promote reliability excellence.

**(b) How do existing market-based mechanisms (e.g., capacity markets, scarcity pricing, or ancillary services) currently address these risks and support resilience?**

***MISO Response***

MISO's market based mechanisms are utilized in its Resource Adequacy Construct, Day-Ahead and Real-Time Energy and Ancillary Services Markets, congestion management processes, and interconnection seams processes to support resilience as highlighted below.

***Resource Adequacy***

MISO's Resource Adequacy Requirements provides mandatory requirements to be met by MISO and Market Participants serving Load in the MISO Region. These requirements are designed to ensure access to deliverable, reliable and adequate supply to meet Coincident Peak Demand and zonal Peak Demand requirements on the Transmission System. These requirements recognize and are complementary to the reliability mechanisms of the States and the Regional Entities ("RE") within the MISO Region. MISO's Tariff recognizes and supports the independent authority of State regulators over generation resources. This longstanding recognition is acknowledged in MISO's resource adequacy programs, which are designed to complement the reliability mechanisms and authority of the MISO states. To enhance balancing opportunities among utilities, MISO offers a resource adequacy construct, including a voluntary Planning Resource Auction ("PRA"), specifically designed to facilitate voluntary trades between and among its members. These requirements establish standards, qualifications, and minimum levels of capacity, assuring MISO is able to meet system needs ahead of each planning year starting on June 1st.



AMERICAN OVERSIGHT

These Resource Adequacy processes mitigate risks associated with high-impact events. As a result of the proactive measures taken by the MISO States, coupled with the PRA as an additional tool to procure capacity resources to meet reliability requirements, MISO currently has a sufficient amount of excess resources (on a regional basis) to support grid resilience.

***Day-Ahead and Real-Time Energy and Ancillary Services Markets***

Day-Ahead and Real-Time Energy and Ancillary Service Markets provide centralized unit commitment, dispatch, procurement and deployment of Operating Reserves. MISO provided comments in response to the Department of Energy's proposed resilience rule[14] describing how market enhancements have improved energy price formation, and value resource reliability attributes on a fuel-neutral basis. These comments addressed price formation, including advances in demand participation, valuing reliability attributes, and scarcity pricing during normal operations and emergencies.[15]

Recent initiatives, including Extended Locational Marginal Pricing ("ELMP"), as well as the creation of Ramp Capability and Emergency Pricing products, have made additional progress towards improving energy price formation in MISO's Day-Ahead and Real-Time Energy markets. ELMP enhances price signals by providing more transparency into the costs that resources incur in order to meet demand obligations. The Ramp Capability Product enforces ramp requirements based on anticipated system ramping needs and helps to reduce price volatility and scarcity pricing. Recent Emergency Pricing reforms have also helped to ensure proper value for all resources that support reliability during short-term periods of tight supply,

[14] *See* MISO's October 23, 2017 comments in RM18-1-000 at P. 7-8.

[15] *Id.*



AMERICAN OVERSIGHT

such as summer peak conditions. Collectively, these reforms improve price transparency and allow resources to recover costs associated with the reliability value they provide.

MISO values discrete reliability attributes for generation resources through proven market-based mechanisms and continues to work with stakeholders on further market-based reliability improvements. Through its Market Roadmap, MISO is exploring several initiatives including: enhanced modeling of combined cycle generators; multi-day market commitments; revisions to its Energy Offer Cap and Value of Lost Load, and; additional enhancements to ELMP. Future initiatives also include an Automatic Generation Control ("AGC") Enhancement that will improve regulation service through better utilization of fast-ramping resources.

MISO is also exploring short-term operating reserve and reliability requirements that incent resource participation and mitigate Voltage and Local Reliability constraints. MISO's Market Roadmap process is intended to prioritize mechanisms that provide the most value and can be implemented in a cost effective manner.

***Congestion Management***

In Order No. 2000, FERC established the requirement for RTOs/ISOs to provide market mechanisms for congestion management, producing "efficient price signals regarding the consequences of [market participant] transmission usage decisions.[16] While FERC's declaration that "traditional approaches to congestion management such as those that rely exclusively on the use of administrative curtailment procedures may no longer be acceptable" has resulted in the near extinction of use of those procedures in RTOs/ISOs including MISO, other, non-RTO system operators continue to rely on them entirely.

---

[16] *Regional Transmission Organizations,* Order No. 2000, FERC Stats. & Regs. ¶ 31,089 (1999).



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000104

The advancement of RTO/ISO energy markets over the past decade facilitated solutions that may be more effective than TLR processes that rely on regional curtailments for localized congestion management. Superior market-based congestion management tools, including redispatch, seams coordination, and market-to-market processes improve reliability and reduce costs compared to TLR. These methods are proven to be more reliable and cost effective even in non-RTO systems.

Local redispatch permits rapid congestion management to meet fast changing conditions without over-curtailing. This method manages congestion in real-time and allows operators to target the congested area and make localized decisions based on real-time data. This flexibility to address congestion at the local level reduces the impact TLR decisions have on the broader Bulk Electric System. Redispatch also utilizes the least amount of power necessary to relieve congestion, which in turn allows generation not redispatched to be available for the next potential problem on the grid. This ability to quickly adjust the system following unplanned events improves resilience.

***Seams***

Improved coordination across the seams within each interconnection allows the grid to more effectively leverage the supply and demand diversity across each interconnection. During times of operational stress, excess supplies in neighboring regions can provide much needed relief. For example, during the Polar Vortex, intra-regional transfers helped support reliable operations in both RTO/ISO and non-RTO/ISO regions affected by the extreme event.

MISO continues important work with its seams partners to enhance operational coordination. For example, MISO's sophisticated operations at the seams enhances reliability and resilience with RTO neighbors providing an elegant, least cost congestion re-dispatch, which



AMERICAN OVERSIGHT

reduces the dependence on less sophisticated curtailments of transmission service between regions such as the backstop NERC TLR process based on the technologies of the 1960s. MISO continues to advance the Joint and Common Market initiative with PJM through enhancements such as interface pricing and coordinated transaction scheduling that both improve pricing efficiency and ultimately reliability at the seams.

The maximization of the use of the transmission system (e.g., contract path sharing at the MISO – PJM border) has become the model for seams operation. In addition, MISO continues to collaborate with SPP and other non-RTO neighbors to advance inter-regional operational improvements to further enhance grid reliability and resilience. MISO encourages the Commission to continue to promote advancements in seams coordination to ensure that resources across the interconnection can be effectively leveraged to respond to unexpected events and disturbances on the system.

**(c) Are there other generation or transmission services that support resilience? If yes, please describe the service, how it supports resilience, and how it is procured.**

***MISO Response***

MISO provides other generation and transmissions services that support resilience. Black Start service is paid to generators that have the ability to reenergize an area without outside support. Black Start units are the building blocks for Transmission Operator restoration plans. MISO has the authority to make emergency energy purchases or sales to maintain the integrity of the Bulk Electric System. Reliability Coordination service provides monitoring of the transmission system and oversight to balancing authorities. Other transmission services MISO offers that support resilience include: HVDC Service; Interconnection Agreements; System Support Service Agreements; Transmission Service Agreements; Wholesale Distribution Service Agreements, and; Power Factor Correction Service.



AMERICAN OVERSIGHT

**(d) How do existing operating procedures, reliability standards (e.g., N-1 NERC TPL contingencies), and RTO/ISO planning processes (e.g., resource adequacy programs or regional transmission planning) currently consider and address resilience?**

***MISO Response***

NERC Reliability Standards provide for common operating parameters across the grid. Generally, they are designed to ensure appropriate response to threats on a contingency basis for long-term, near-term and real-time periods. Certain NERC Reliability Standards also directly support resilience by requiring the development and implementation of restoration and recovery plans, which seek to ensure that the Bulk Electric System can be recovered following a widespread outage. The NERC Standards focus on system restoration, recovery of critical cyber assets, and response to cyber security incidents. Other NERC Standards support resilience indirectly, e.g. by ensuring off-site electrical power to nuclear facilities.

NERC's compliance monitoring program provides oversight of the development of such resilience efforts. Not only are the requirements of the NERC Standards subject to audit and resulting enforcement proceedings, the audits and other compliance monitoring efforts also provide a touchpoint for continuous improvement even when entities meet baseline compliance requirements.

**(e) Are there any market-based constructs, operating procedures, NERC reliability standards, or planning processes that should be modified to better address resilience? If so, please describe the potential modifications.**

***MISO Response***

Yes. There are opportunities to modify NERC TLR processes and associated NAESB TLR Business Practices to enable a much more resilient operation of the Eastern Interconnection ("EI"). Currently, TLR can be a threat to resilient operations because a Reliability Coordinator may block and curtail power transfers across the EI, even when viable redispatch options are



AMERICAN OVERSIGHT

available to facilitate the original transaction reliably. These transfers may be vital to withstanding and reducing the magnitude and/or duration of a disruptive event. TLR may be slow and is typically an hourly process. Rather than curtailing power transfers through TLR, Reliability Coordinators should work together on managing congestion through redispatch of generation, with appropriate compensation, to enable transfers to reliability continue. More coordinated operation of the EI would enhance reliability and resilience and support more economic management of the EI.

Resilient operations may also be harmed through proxy or substitute flowgates to control constraints. A typical proxy flowgate is a combination of higher voltage facilities in the area of the actual transmission constraint. Proxy flowgates can be used to circumvent the TLR five percent transmission distribution factor ("TDF") threshold established by NERC to identify power flows that are significantly impacting a local transmission constraint.

By utilizing TLR on a proxy flowgate, a Reliability Coordinator essentially curtails a large amount of power flows over much wider area instead of locally managing the constraint through redispatch. In the event that the five percent TDF does not identifying enough flow to solve a constraint, and the Reliability Coordinator is unable solve the constraint, Reliability Coordinators are able to utilize protocols that lower the threshold, while still being more precise through joint redispatch in managing the constraints.

The increasing complexity of the grid, with additional wind, solar and gas generation, has catapulted the industry to a place where reliability and cost-effectiveness is dependent on more flexible methods to balance supply and demand. Curtailing schedules between regions may be an inherently ineffective operational tool, as efficiencies developed through inter-regional planning



AMERICAN OVERSIGHT

processes are minimized. Opportunities exist to better coordinate across the EI by using modern congestion management methods for improved reliability, efficiency and resilience.

Congestion may be better managed at the local level in a coordinated manner. TLR should not be considered as the default method to keep power flows within safe and reliable operating limits. Redispatch, seams coordination, and market-to-market processes are more reliable, cost effective methods to relieve congestion, even in non-RTO systems. While such efforts will take effort and time within the industry, with the Commission's leadership, there is the potential for significant reliability, efficiency and resilience gains.

FERC should also continue to promote industry progress on congestion management mechanisms. Order No. 693[17] facilitated MISO and PJM work with NAESB to develop a future path for TLR through coordination with NERC. Enhancements to the TLR procedure would be split into a reliability component managed by NERC (known as Future Path of TLR Phase 1) and an equity component managed by NAESB (Future Path of TLR Phase 2).

Phase 1 will be utilized to support Parallel Flow Visualization ("PFV"). PFV seeks to improve the wide-area view of Reliability Coordinators in the Eastern Interconnection providing a better understanding of the current operating state of the Bulk Electric System. PFV addresses an Interchange Distribution Calculator ("IDC") shortcoming by having operators submit real-time generator output every 15 minutes along with the type of transmission service for each generator.

At this time, MISO has not identified any other major market-based construct modifications necessary to bolster resilience, although continued evolution of markets to meet

---

[17] *Mandatory Reliability Standards for the Bulk-Power System,* Order No. 693, 120 FERC ¶ 61,053 (2007).



AMERICAN OVERSIGHT

reliability needs must continue, including expansion of market-constructs, particularly in inter-regional congestion management as discussed above. Through the Market Roadmap process, MISO and our stakeholders continue ongoing evaluation of energy market design and performance and the practices of other best-in-class electric market performers. Based on this process, MISO identifies ways to improve performance and increase value to its member markets. Together with stakeholders, MISO incorporates the highest value enhancements and products throughout the development life cycle. The Market Roadmap guides the ongoing development and implementation of projects that enhance MISO's suite of market services.

## III. COMMUNICATIONS

All correspondence and communications in this matter should be addressed to:[18]

Michael L. Kessler
Jonathan J. Tauber
Midcontinent Independent
System Operator, Inc.
720 City Center Drive
Carmel, IN 46032
Telephone: 317.249.5400
mkessler@misoenergy.org
jtauber@misoenergy.org

James C. Holsclaw
The Holsclaw Group, LLC
303 E. Main St.
Plainfield, IN 46168
Telephone: 317.839.1140
jim@thglaw.com

[18] MISO requests waiver of section 385.203(b)(3) of the Commission's regulations to permit the designation of more than two persons upon whom service is to be made in this proceeding. 18 C.F.R. § 385.203(b)(3) (2016).



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000110

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

## IV. NOTICE AND SERVICE

MISO notes that it has served a copy of this filing electronically, including attachments, upon all Tariff Customers, MISO Members, Member representatives of Transmission Owners and Non-Transmission Owners, as well as all state commissions within the Region, and the Organization of MISO States. In addition, the filing has been posted electronically on MISO's website at https://www.misoenergy.org/legal/ferc-filings/ for other parties interested in this matter.

## V. CONCLUSION

MISO's extensive review of external risks has led to investments in leading technologies and security tools to mitigate cyber and physical threats to MISO's operation of the grid. MISO's MSE will fortify MISO's ability to protect against cyber and physical-security threats and establishes a foundation for putting new market products in place to respond to changing conditions. In addition, MISO is focused on robust transmission planning processes, executing market rule changes guided by the Market Roadmap, utilizing operations drills and simulations, improving visibility into gas-electric coordination and continuous improvement into system visibility.

Opportunities to further improve and enhance resilience should continue across the industry in a collaborative manner. Continued industry dialogue on effectively valuing resilience in transmission planning processes and ensuring CIP standards provide the flexibility to allow for the adoption of industry best practices will help the Commission identify and consider key resilience issues. To the extent FERC is considering resilience issues on the distribution system it should engage in coordination with State and local regulators.



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-J-000111

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

There is an opportunity to ensure that artificial barriers that may affect inter-regional transactions do not adversely affect resilient grid operations. Processes that support more frequent and flexible congestion management and widespread usage of tools that support improved system visibility across seams, will promote more resilient grid operations. MISO looks forward to continuing this dialogue with the Commission and appreciates the opportunity to participate in this important industry endeavor.

Respectfully,

*/s/ Jonathan J. Tauber*
Michael L. Kessler
Jonathan J. Tauber
Midcontinent Independent
System Operator, Inc.
mkessler@misoenergy.org
jtauber@misoenergy.org

James C. Holsclaw
The Holsclaw Group, LLC
303 E. Main St.
Plainfield, IN 46168
jim@thglaw.com

*Attorneys for the Midcontinent Independent System Operator, Inc.*



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**CERTIFICATE OF SERVICE**

I hereby certify that I have this day e-served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2012).

Dated this 9th day of March, 2018 in Carmel, Indiana.

*/s/ Julie Bunn*

Julie Bunn

Midcontinent Independent
System Operator, Inc.
720 City Center Drive
Carmel, IN 46032



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Fwu, Melissa E. EOP/WHO
**To:** Anthony Pugliese
**Subject:** Neil Speaking at South Asian Youth Symposium
**Date:** Friday, March 2, 2018 11:28:48 AM

---

Hey, Anthony,

Keeping my fingers crossed that Neil's still in town next Thursday! We're bringing in 170 South Asian "youth" for a briefing, and I think he would be such a rock start to them!

South Asian Youth Symposium
Thursday, March 8
White House, South Court Auditorium
12:15pm – 1:45pm

Best,

Melissa Fwu
Office of Public Liaison
(202) 395-7770

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Dan Dolan
**To:** Travis Fisher; Nicholas Gladd
**Subject:** NEPGA Filing
**Date:** Friday, July 27, 2018 3:09:29 PM
**Attachments:** NEPGA Request Clarif and Rehearing ER18-1509 Final.pdf

---

Hi Nick and Travis –

I wanted to pass along a motion for clarification/rehearing request NEPGA filed this afternoon on the Commission's ISO-NE waiver denial, focused on FCA 13 pricing.

-Dan

Dan Dolan
President, New England Power Generators Association
ddolan@nepga.org
Direct: (617) 516-5355
Cell: [redacted]
***Follow us on Twitter: @NEPowerGen***

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

*The National Academies of*
SCIENCES · ENGINEERING · MEDICINE

*Division on Engineering & Physical Sciences (DEPS)*
**Meeting of the Board on Energy & Environmental Systems (BEES)**

**MEETING AGENDA (TENTATIVE)**
**March 13-14, 2018**
**National Academy of Sciences Building**
**2101 Constitution Ave, NW, Room 125 Washington, D.C. 20418**

**TUESDAY, MARCH 13 (ROOM 125)**

**OPEN SESSION** – Invited Guests, Board Members and Academies Staff

| | |
|---|---|
| 1:00-1:30 PM | DOE Office of Legacy Management<br>*Tania Smith Taylor*, Director, Office of Business Operations, (*invited)* |
| 1:30-2:00 PM | DOE Office of Electricity Delivery and Energy Reliability<br>*Bruce Walker, Assistant Secretary for the Office of Electricity* |
| 2:00-2:30 PM | DOE Office of Nuclear Energy<br>*Edward McGinnis, Principal Deputy Assistant Secretary for Nuclear Energy* |
| 2:30- 3:00 PM | DOE Energy Policy and Systems Analysis<br>*Carla Frisch, Director of Climate and Environmental Analysis* |
| 3:00- 3:30 PM | BREAK |
| 3:30- 4:00 PM | DOE Vehicle Technologies Office (speaker undecided)<br>*David Howell, Deputy Director*<br>*Rachael Nealer, Analysis Program Manager* |
| 4:00- 4:30 PM | Senate Energy and Natural Resources Committee<br>*Spencer Gray, Professional Committee Staff* |
| 4:30- 5:00 PM | Federal Energy Regulatory Commission<br>*Anthony Pugliese, Chief of Staff for Chairman McIntyre* |
| 5:00 PM | *ADJOURN* |

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Glazer, Craig
**To:** Andrea Spring; Andrew Holleman; Andrew Weinstein; Anthony Pugliese; Anton Porter; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Brett Rendina; Brian George; Carmen Cintron; Cheryl LaFleur; Daniel Nowak; David Morenoff; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; Janel Burdick; Jesse Hensley; Jessica Cockrell; Jignasa Gadani; Jorge Moncayo; Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kimberly Bose; Kurt Longo; Larry Parkinson; LaShawn Dickens; Leonard Tao; Lindsee Gentry; Martin Kirkwood; Matthew Christiansen; Meghan Estenson; Michelle R. Brown; Mindi Sauter; Neil Chatterjee; Nils Nichols; Pamela Quinlan; Patricia Smith; Peter Rolashevich; Rich Glick; Rikardo Hull; Robert F. Powelson; Robert Ross; Steven Wellner; Tracy Adamsky
**Subject:** PJM Grid Resilience Comments---Courtesy Copy of Exec Summary and Separate Courtesy Copy of Entire Filing
**Date:** Friday, March 9, 2018 5:39:09 PM
**Attachments:** PJM Grid Resilience Comments - Docket AD18-7-000.pdf
PJM Grid Resilience Comments - Intro and Executive Summary Only - Docket AD18-7-000.pdf

---

Commissioners, Aides and Department Heads:

I am pleased to present to you a courtesy copy of PJM's comments in the Grid Resilience docket (Docket AD18-7). Because the document containing the entirety of the PJM Comments is large, I have also attached as a second pdf, the Intro and Exec Summary which details, in bullet form, our going-forward recommendations to the Commission. Both are attached above.

We look forward to continuing the dialogue on these important issues.

Thank you. I hope everyone can get some rest in between reading these and the other submittals!

**CRAIG GLAZER**
Vice President-Federal Government Policy
PJM Interconnection, LLC—D.C. Office

Suite 600
1200 G Street, N.W.
Washington, D.C. 20005
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Brown, Maryam S
**To:** Travis Fisher
**Subject:** Re: RE: Just saying...
**Date:** Tuesday, July 17, 2018 9:47:44 AM

---

Yes, yes, forgive me for not saying good morning first. Good morning. Hope you are well.

But really truly, this is a bad problem, creative talkers notwithstanding. Though kudos for not using the inaccurate "4 in 2017" one.

If there is anything I can do to help, please let me know. The Port Arthur LNG facility signed a contract with Poland at the World Gas Conference. All we need is a positive schedule.

Maryam S. Brown

---

**From:** Travis Fisher <travis.fisher@ferc.gov>
**Sent:** Tuesday, July 17, 2018 8:52 AM
**To:** Brown, Maryam S
**Subject:** [EXTERNAL] RE: Just saying...

And a good morning to you too, Maryam!

**From:** Brown, Maryam S [mailto:MSBrown@Sempra.com]
**Sent:** Tuesday, July 17, 2018 8:14 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** Just saying...

There were 16 LNG IMPORT terminals pending in 2007 and FERC was getting them reviewed in about a year. But I get it, using 2011 as your reference gives you your talking point.

## Top FERC aide outlines priorities to state regulators

Rod Kuckro, E&E News reporter
Published: Tuesday, July 17, 2018

SCOTTSDALE, Ariz. — A senior adviser to the nation's top energy regulator says his boss is taking a deliberative, record-based approach to the top challenges facing the Federal Energy Regulatory Commission, which he leads.

"I'm from the government, and I'm here to help," Travis Fisher, who advises FERC Chairman Kevin McIntyre, said to laughter from attendees at a breakfast here yesterday sponsored by the Consumer Energy Alliance during the summer meeting of the National Association of Regulatory Utility Commissioners. "No, that is what I'm trying to deliver" on behalf of FERC, he said.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6



Travis Fisher. Fisher/LinkedIn

McIntyre has three clear priorities, Fisher said — resilience, infrastructure and reform of the Public Utility Regulatory Policies Act (PURPA).

"Every time the chairman speaks, the top priority is resilience. Some of that is coming over from [the Department of Energy], and some of that is his own review of the record in front of us," Fisher said.

After FERC early this year rejected a request from Energy Secretary Rick Perry to subsidize coal and nuclear power plants, the commission launched its own broad inquiry into the resilience of regional transmission grids (***Energywire***, Jan. 9).
Fisher came to FERC from DOE, where he oversaw a staff report that pointed to natural gas as the leading driver of coal plant closures this decade. That report was used as the basis for Perry's request that FERC rejected (***E&E News PM***, April 2).

"We are going through all the comments and taking a deep dive on that issue" to "sort out what is appropriate for us to act on," Fisher said of the resilience inquiry at FERC.

"Some folks have asked, 'With all the stuff coming out of DOE, is FERC still working on this issue; is this still a top priority?' Yes, it's still a top priority.

"We want to develop the record," Fisher said.

Commissioners are "trying to reach a common understanding" on things such as a definition of resilience and "what exactly are we talking about?" he said.

In the "resilience space," Fisher said, "a whole lot [is] happening at the distribution level, and we recognize that that's a state issue."

"We're not going for a one-size-fits-all solution; I don't think FERC has a silver bullet," he said.

An open question is "what steps and at what point FERC will need to take action, because it was unclear at the point of the Jan. 8 action that it was imperative that we act within our statutory authority," Fisher said.

## FERC facing 'incredible' volume of work on gas infrastructure

The surfeit of natural gas being produced in the United States through hydraulic fracturing advances has caused a spike in proposals for pipelines and liquefied natural gas terminals.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Right now, there are 15 LNG projects requiring FERC approval, 13 of which are for export facilities, Fisher said. By contrast, there was but one application before the agency in 2011.

"So the volume of work is incredible. We need to take steps to get moving and adjust to that new world; I can assure you we're doing everything we can to speed it up. When the volume [of applications] was lower, it was a simpler process," he said.

FERC splits responsibility with review of LNG projects with DOE, which evaluates economic need while FERC looks at potential environmental and safety impacts.

"One of the hurdles is getting the right personnel to do the right analysis — who can do the modeling on where spills [could] go, where might they ignite — it's very complicated stuff," Fisher said, adding that another hurdle is that there are some "who don't necessarily want us to be doing this work."

To handle the extra work, FERC is looking at using hiring authorities it has not used in the past, he said. There also is "some conversation about under what scenarios it would it be acceptable to hire a third party and how exactly would that work."

According to Fisher, McIntyre believes "it's a completely different world than it was in 1978," when Congress enacted PURPA after oil prices skyrocketed in the wake of the 1973 Arab oil embargo. The statute aimed to encourage conservation, more reliance on domestic energy sources and, in particular, renewable energy technologies.

That is why McIntyre in May launched a new review of the law, Fisher said (***Energywire***, May 18).

"I can't say exactly what we're going to do, how we're to act on PURPA," Fisher said. But, he said, "we owe it to folks to re-evaluate these things as the facts on the ground change."

FERC held a technical conference in 2016 on PURPA reforms, and that docket is still open, he said, noting that the Edison Electric Institute has recently submitted comments on possible changes. "We do read them," he said, urging others to weigh in.

Trying to repair perceived inequities in how state and regional power markets operate is another issue facing FERC.

"An important thing for this chairman is to review all the facts, not to prejudge anything and not to go into it knowing what the outcome is," Fisher said.

"It's an incredibly tough problem. If you're a large nuclear plant or large coal plant, it's not pretty out there. We need to acknowledge that.

"There's a line there where we can't touch what states are doing. I don't think there's any appetite to change that approach per se. We're trying to do what we can to fix the markets," he said.

But "you know it's not FERC's job to figure out an ideal [generation] resource mix," he said.

Bruce Walker, DOE's assistant secretary for electricity, was slated to give a morning keynote to NARUC attendees and have an ensuing dialogue with members on electricity and natural gas issues.

But Walker ran into travel snags and had to cancel. Instead, he sent remarks recorded on his cellphone pledging a collaborative relationship with state regulators, especially on combating physical and cyber threats to critical infrastructure and national security.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

---

This email originated outside of Sempra Energy. Be cautious of attachments, web links, or requests for information.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Travis Fisher
**To:** Derek Bandera
**Subject:** RE: [EXT] RE: IMM Reference Materials
**Date:** Monday, July 30, 2018 5:02:00 PM

Yep I got back last night so I've been in the office today. Made it to Raleigh, Pinehurst, and Charlotte —too short of a trip though!

I'll join you in the cheap seats tomorrow. I'm hoping to catch at least the opening of most of the panels.

**From:** Derek Bandera [mailto:dbandera@misoenergy.org]
**Sent:** Monday, July 30, 2018 4:58 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: [EXT] RE: IMM Reference Materials

Thanks Travis!
Let me circle up with PJM and CAISO to see how their schedules look! Are you already back from NC?
I'll be at the Reliability Conference tomorrow. Maybe I'll see you from the cheap seats!
-Derek

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Monday, July 30, 2018 4:55 PM
**To:** Derek Bandera
**Subject:** [EXT] RE: IMM Reference Materials

**External E-mail:** Please be cautious and evaluate before you click on links, open attachments, or provide credentials or data.

Hey Derek,

I'm coordinating this initial IMM/MMU meeting with Jignasa, Larry Parkinson, and a couple other folks over here. Would you be able to come to FERC at or after 3:30 pm next Friday, August 10th? If not, I can check with folks about their availability the following week. Next week ended up being tough for us.

Separately, are there any specific people aside from me, Jignasa, and Larry that you feel should be present in this first meeting? I'd be happy to invite people at your request. I reached out to John Shepherd last week—I'll try to coordinate with him so he can be present. I'll also extend courtesy invitations to senior staff in OEMR and OGC. Let me know if you think of anyone else.

Best,
Travis

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Derek Bandera [mailto:dbandera@misoenergy.org]
**Sent:** Wednesday, July 25, 2018 10:47 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Cc:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** IMM Reference Materials

Travis,
Great to chat with you this morning.
Attached are the IMM/MMU Materials relating to Issues that may serve as useful references I mentioned. They include:

- 2005 Policy Statement on MMUs (PL05-1)
- 2007 Review of Market Monitoring Policies Technical Conference Agenda (AD07-8)
- 2008 Order 719 – (incl. Market Monitoring Policies)
    - 2009 Order 719a
- 2018 DC Circuit "Old Dominion" Decision (IMM Standing)
- 2018 PJM Filing Relating to IMM Standing (EL17-62) (other filings in the docket by PJM relate to IMM role)
- 2018 Ruling in PA Solar Park relating to IMM Standing (ER18-1226)

I'll plan to touch base with you next week. Let me know if I can be of any help in the meantime.
Thank you!
-Derek

Derek Bandera
Executive Director, Federal Regulatory Affairs
MISO

202-674-4909
dbandera@misoenergy.org

505 9th Street, NW
Suite 1000
Washington, DC 20004

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Fwu, Melissa E. EOP/WHO
**To:** Anthony Pugliese
**Subject:** RE: Alabama @ WH
**Date:** Tuesday, March 13, 2018 2:09:08 PM

---

Update – April 10

**From:** Fwu, Melissa E. EOP/WHO
**Sent:** Tuesday, March 13, 2018 1:49 PM
**To:** Anthony Pugliese (Anthony.Pugliese@ferc.gov) <Anthony.Pugliese@ferc.gov>
**Subject:** Alabama @ WH

Hey, Anthony,

Will you send me the names, titles, and unique email addresses for the FERC folks who wanted to come to the White House to see Alabama? I don't have the date yet, but we're starting to collect names for the guest list.

Thanks!

Melissa Fwu
Office of Public Liaison
(202) 395-7770

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** McCormack, Brian
**To:** Anthony Pugliese
**Subject:** RE: Emil Fwd: GTO Digital Twin
**Date:** Monday, March 5, 2018 9:17:58 PM

No, I don't. We're seeing the Siemens CEO at some point during CERA. If anything I'd say you meet him and just be honest that you only a few mins while here (if in fact you do and can meet).

---

**From:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Date:** Monday, Mar 05, 2018, 8:13 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: Emil Fwd: GTO Digital Twin

Do you have a personal opinion on the meeting request?

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission

On Mar 5, 2018, at 4:47 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Hey - meant to send earlier. Not sure if the Chairman is taking industry meetings but this came to me in hopes of passing along.
>
> ---
>
> **From:** Emil Pena <emilio@emilpenainterestsinc.com>
> **Date:** Saturday, Mar 03, 2018, 2:08 PM
> **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> **Cc:** Menezes, Mark <Mark.Menezes@hq.doe.gov>
> **Subject:** Emil Fwd: GTO Digital Twin
>
> Brian, this is the Harmonization project road map that i gave to Mark and you can share with Chairman McIntyre. I can meet with him at his convenience during CERA and for sure on Wednesday when Sec Perry is presenting. This is a good opportunity/option on resilience and reliability. See you at CERA, please call or text on schedule. Emil
>
> Emil Peña
> 713-650-8004
> Sent from my T-Mobile 4G LTE Device
>
> <NG Digital Twin.pdf>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Leonard Tao
**To:** Anthony Pugliese
**Subject:** RE: Gov. Carney - FERC - Tax Reform
**Date:** Tuesday, March 6, 2018 12:57:29 PM

[redacted]

Thanks,
Len

**From:** Anthony Pugliese
**Sent:** Tuesday, March 06, 2018 12:06 PM
**To:** Leonard Tao <Leonard.Tao@ferc.gov>
**Subject:** Fwd: Gov. Carney - FERC - Tax Reform

[redacted]

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission

Begin forwarded message:

> **From:** "Hoelscher, Douglas L. EOP/WHO" <Douglas.L.Hoelscher@who.eop.gov>
> **Date:** March 6, 2018 at 11:42:58 AM EST
> **To:** "Anthony.Pugliese@ferc.gov" <Anthony.Pugliese@ferc.gov>
> **Cc:** "Gray, Christopher S. EOP/WHO" <Christopher.S.Gray@who.eop.gov>, "Sewell, Jack B. EOP/WHO" <John.B.Sewell@who.eop.gov>, "Pottebaum, Nicholas D. EOP/WHO" <Nicholas.D.Pottebaum@who.eop.gov>
> **Subject: FW: Gov. Carney - FERC - Tax Reform**
>
> Yield to you all, just wanted to make sure you saw it timely
>
> **From:** Gray, Christopher S. EOP/WHO
> **Sent:** Tuesday, March 6, 2018 11:03 AM
> **To:** Hoelscher, Douglas L. EOP/WHO <Douglas.L.Hoelscher@who.eop.gov>
> **Cc:** Pottebaum, Nicholas D. EOP/WHO <Nicholas.D.Pottebaum@who.eop.gov>
> **Subject:** Gov. Carney - FERC - Tax Reform
>
> https://governor.delaware.gov/wp-content/uploads/sites/24/2018/03/Governor-Carney-Letter-to-FERC-3.1.2018.pdf
>
> FYI – I am going to include this in our update but wanted to make sure you saw this.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

CG

Christopher S. Gray
Senior Associate Director
White House Office of Intergovernmental Affairs
O: 202.456.4223 | C: 202.881.7571 | E: Christopher.S.Gray@who.eop.gov

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Travis Fisher
**To:** Rod Kuckro
**Subject:** RE: I hear you're at NARUC
**Date:** Tuesday, July 17, 2018 11:30:00 AM

---

Hey Rod, I thought your piece was balanced and fair. If I'm being picky (and if you're open to nit-picky feedback), I would personally disagree with the 1-to-1 linkage between the grid study and the NOPR. Based on my reading of the citations involved, the NOPR relied as much (if not more) on the QER and the IHS study as it did on the DOE study I led. Food for thought.

I'm responding to these lines: "Fisher came to FERC from DOE, where he oversaw a staff report that pointed to natural gas as the leading driver of coal plant closures this decade. That report was used as the basis for Perry's request that FERC rejected (E&E News PM, April 2)."

Again, great to finally connect with you yesterday. Hope you're having some fun out there.

-----Original Message-----
From: Rod Kuckro [mailto:rkuckro@eenews.net]
Sent: Monday, July 16, 2018 1:49 PM
To: Travis Fisher <Travis.Fisher@ferc.gov>
Subject: RE: I hear you're at NARUC

Likewise Travis. I appreciate the offer.

Rod Kuckro
Reporter
E&E News
rkuckro@eenews.net
www.twitter.com/Rodkuckro
www.linkedin.com/in/rodkuckro
202-446-0449

---

From: Travis Fisher [Travis.Fisher@ferc.gov]
Sent: Monday, July 16, 2018 12:46 PM
To: Rod Kuckro
Subject: Re: I hear you're at NARUC

Great meeting you today, Rod. Feel free to reach out any time.

Sent from my iPhone

> On Jul 16, 2018, at 6:45 AM, Rod Kuckro <rkuckro@eenews.net> wrote:
>
> Quite alright, I got to catch up with Alison Silverstein before crashing.
>
> I'm going to this CEA breakfast that ends at 8:15. How about 8:30? Or how about 1:30?
> Thanks,
> Rod
>
> Rod Kuckro
> Reporter
> E&E News
> rkuckro@eenews.net
> www.twitter.com/Rodkuckro

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

> www.linkedin.com/in/rodkuckro
> 202-446-0449
>
> _____
> From: Travis Fisher [Travis.Fisher@ferc.gov]
> Sent: Monday, July 16, 2018 12:40 AM
> To: Rod Kuckro
> Subject: Re: I hear you're at NARUC
>
> Sorry for dragging my feet. Let me know when you're available tomorrow.
>
> Sent from my iPhone
>
>> On Jul 15, 2018, at 6:34 PM, Rod Kuckro <rkuckro@eenews.net> wrote:
>>
>> Great. Now or tomorrow works
>>
>> Sent from my iPhone
>>
>>> On Jul 15, 2018, at 5:52 PM, Travis Fisher <Travis.Fisher@ferc.gov> wrote:
>>>
>>> You heard right. But I'm only in town for 36 hours so it would have to be tonight or tomorrow. Let me know.
>>>
>>> Sent from my iPhone
>>>
>>>> On Jul 15, 2018, at 5:46 PM, Rod Kuckro <rkuckro@eenews.net> wrote:
>>>>
>>>> Travis,
>>>> Do you have time for a drink to chat?
>>>> Rod
>>>>
>>>> Sent from my iPhone
>>>>
>>
>
>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Wender, Ben
**To:** Anthony Pugliese
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy
**Date:** Tuesday, March 13, 2018 9:45:20 AM

---

Hi Anthony – looking forward to seeing you this afternoon.

If you have a ppt presentation, feel free to share with me anytime and we will have it loaded and ready to go when you get here. I also want to give a heads up that our new Board Member Vicky Bailey (FERC commissioner '93-'00) will be here.

Thanks again and see you soon.
ben

**From:** Wender, Ben
**Sent:** Monday, March 5, 2018 4:31 PM
**To:** 'Anthony Pugliese' <Anthony.Pugliese@ferc.gov>
**Cc:** Holmes, John <JHolmes@nas.edu>; Zeitler, Elizabeth <EZeitler@nas.edu>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Hi Anthony,

Following up on this morning's message, attached is the public agenda for the meeting (apologies for not sharing earlier!). As indicated, we have you scheduled to present from 4:30-5:00pm and we are located at the NAS building on the Mall (2101 Constitution, with the Einstein statue in front of it).

We don't have specific prompts, but are interested in a brief update on FERC/the Chairman's priorities for the next two years, and some details regarding activities in electricity and energy system resilience. We want to leave at least 15 minutes for open discussion with the Board members – sorry to be so tight on time. The meeting will be closed to the public and media, although other invited speakers may stick around.

Please let me know if you have any questions, and thank you again for joining the meeting.
ben

**From:** Wender, Ben
**Sent:** Monday, March 5, 2018 10:48 AM
**To:** 'Anthony Pugliese' <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Thanks, Anthony. The meeting will be at:

National Academy of Sciences Building
2101 Constitution Ave, NW, Room 125

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Washington, D.C. 20418

Very much appreciate you coming over, and looking forward to it.
ben

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Monday, March 5, 2018 10:43 AM
**To:** Wender, Ben <BWender@nas.edu>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Ben, looking at my calendar I realized I didn't have a location for your meeting?

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Wednesday, February 07, 2018 9:08 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>; Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Great, thanks much Anthony. Very much looking forward to it, and I will follow up with some prompts when the time gets closer.
ben

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Tuesday, February 6, 2018 1:18 PM
**To:** Wender, Ben <BWender@nas.edu>; Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

4:30 should be fine. Thanks.

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Tuesday, February 06, 2018 9:18 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

This is wonderful news, thanks Tracy and Anthony!

I will follow up a few prompts and logistics for Anthony's presentation. Briefly, we are hoping for about 15 minutes of update on FERC's activities in electricity and energy system resilience, followed by about 15 minutes of open discussion with the Board members. The meeting will be closed to the public and media.

Unfortunately our senate speaker has a tight schedule—would it be possible to have Anthony

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

present from 430-500pm instead of 4pm?

Thanks again for all of your help Tracy, and Anthony for agreeing to join us.

Wishing you the best,
ben

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Tuesday, February 6, 2018 8:38 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Hi Ben,

The Chairman's Chief of Staff, Anthony Pugliese, would be available to speak at 4PM on March 13th. I have cc'd him on this email. If you could send the details to both of us, that would be helpful.

Thanks!
Tracy

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Monday, February 05, 2018 8:58 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

We can be somewhat flexible with the speaking time based on the speaker's preference, but had tentatively planned for 4-430 pm.

Is there a time that preferable?

Thanks for your help Tracy,
ben

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Monday, February 5, 2018 8:45 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Mr. Wender,

What time would the person be speaking on the 13th?

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Tracy

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Friday, February 02, 2018 11:56 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Kevin McIntyre <Kevin.McIntyre@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Thank you, Tracy. We understand that the Chairman must have a busy schedule.

Nonetheless, we are eager to learn about resilience related activities ongoing at FERC. Will you provide recommendations for other senior FERC staff who are available and can describe ongoing resilience activities?

Thank you and best,

Ben A Wender
Program Officer
Board on Energy and Environmental Systems
Division on Engineering and Physical Sciences
bwender@nas.edu
[redacted]

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Friday, February 2, 2018 11:43 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Mr. Wender,

Thank you very much for your request. The Chairman appreciates the invitation, but unfortunately, he will not be available to speak at the National Academies of Sciences, Engineering, and Medicine's meeting in DC on March 13th.

Thank you,

Tracy Adamsky
Confidential Assistant
Office of Chairman Kevin J. McIntyre.
Federal Energy Regulatory Commission

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

tracy.adamsky@ferc.gov
(202) 502-6821

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Wednesday, January 31, 2018 10:58 AM
**To:** Kevin McIntyre <Kevin.McIntyre@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Cc:** Kerxhalli-Kleinfield, Michaela <MKerxhalliKleinfield@nas.edu>; Holmes, John <JHolmes@nas.edu>
**Subject:** Invitation to present at National Academies of Sciences meeting of Board on Energy

Dear Chairman McIntyre and Chief of Staff Pugliese;

The National Academies of Sciences, Engineering, and Medicine's Board on Energy and Environmental Systems is meeting in Washington DC on March 13th, 2018, and would be honored if you would join us to present on the ongoing activities at FERC related to energy system resilience and market compensation for different resilience attributes. The Board would also be interested in any comments about the recently completed study for your office "Enhancing the Resilience of the Nation's Electricity System". I am happy to share additional prompts if you are interested.

The current members of the Board are listed below, and many have expressed strong interest in hearing from you.

Please let me know if you are available to present on the afternoon of March 13th, and if there are preferred times for you to join.

Thank you very much for your consideration,

Ben Wender
Program Officer
Board on Energy and Environmental Systems
Division on Engineering and Physical Sciences
bwender@nas.edu
[redacted]

Current BEES Members:
**JARED COHON, NAE,** Carnegie Mellon University, *Chair*
**DAVID ALLEN, NAE,** University of Texas, Austin
**W. TERRY BOSTON, NAE,** GridLiance GP, LLC and Grid Protection Alliance
**WILLIAM BRINKMAN, NAS,** Princeton University, Princeton, New Jersey
**BARBARA KATES-GARNICK,** Tufts University, Boston, Massachusetts
**JOANN MILLIKEN,** Independent Consultant, Alexandria, Virginia
**MARGO OGE,** Office of Transportation and Air Quality, Environmental Protection Agency, McLean,

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Virginia

**MICHAEL RAMAGE, NAE,** ExxonMobil Research and Engineering Company (retired), New York City

**DOROTHY ROBYN,** Consultant, Washington, D.C.

**KELLY SIMS-GALLAGHER,** The Fletcher School, Tufts University, Medford, Massachusetts

**JOHN WALL, NAE,** Cummins Inc (retired), Belvedere, California

**ROBERT WEISENMILLER,** California Energy Commission, Sacramento, California

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Wender, Ben
**To:** Anthony Pugliese
**Cc:** Holmes, John; Zeitler, Elizabeth
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy
**Date:** Monday, March 5, 2018 4:31:47 PM
**Attachments:** Open Agenda-March 13 2018.pdf

---

Hi Anthony,

Following up on this morning's message, attached is the public agenda for the meeting (apologies for not sharing earlier!). As indicated, we have you scheduled to present from 4:30-5:00pm and we are located at the NAS building on the Mall (2101 Constitution, with the Einstein statue in front of it).

We don't have specific prompts, but are interested in a brief update on FERC/the Chairman's priorities for the next two years, and some details regarding activities in electricity and energy system resilience. We want to leave at least 15 minutes for open discussion with the Board members – sorry to be so tight on time. The meeting will be closed to the public and media, although other invited speakers may stick around.

Please let me know if you have any questions, and thank you again for joining the meeting.
ben

**From:** Wender, Ben
**Sent:** Monday, March 5, 2018 10:48 AM
**To:** 'Anthony Pugliese' <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Thanks, Anthony. The meeting will be at:

National Academy of Sciences Building
2101 Constitution Ave, NW, Room 125
Washington, D.C. 20418

Very much appreciate you coming over, and looking forward to it.
ben

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Monday, March 5, 2018 10:43 AM
**To:** Wender, Ben <BWender@nas.edu>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Ben, looking at my calendar I realized I didn't have a location for your meeting?

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Wednesday, February 07, 2018 9:08 AM

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>; Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Great, thanks much Anthony. Very much looking forward to it, and I will follow up with some prompts when the time gets closer.
ben

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Tuesday, February 6, 2018 1:18 PM
**To:** Wender, Ben <BWender@nas.edu>; Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

4:30 should be fine. Thanks.

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Tuesday, February 06, 2018 9:18 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

This is wonderful news, thanks Tracy and Anthony!

I will follow up a few prompts and logistics for Anthony's presentation. Briefly, we are hoping for about 15 minutes of update on FERC's activities in electricity and energy system resilience, followed by about 15 minutes of open discussion with the Board members. The meeting will be closed to the public and media.

Unfortunately our senate speaker has a tight schedule—would it be possible to have Anthony present from 430-500pm instead of 4pm?

Thanks again for all of your help Tracy, and Anthony for agreeing to join us.

Wishing you the best,
ben

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Tuesday, February 6, 2018 8:38 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Hi Ben,

th

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

The Chairman's Chief of Staff, Anthony Pugliese, would be available to speak at 4PM on March 13 . I have cc'd him on this email. If you could send the details to both of us, that would be helpful.

Thanks!
Tracy

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Monday, February 05, 2018 8:58 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

We can be somewhat flexible with the speaking time based on the speaker's preference, but had tentatively planned for 4-430 pm.

Is there a time that preferable?

Thanks for your help Tracy,
ben

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Monday, February 5, 2018 8:45 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Mr. Wender,

What time would the person be speaking on the 13th?

Tracy

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Friday, February 02, 2018 11:56 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Kevin McIntyre <Kevin.McIntyre@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Thank you, Tracy. We understand that the Chairman must have a busy schedule.

Nonetheless, we are eager to learn about resilience related activities ongoing at FERC. Will you provide recommendations for other senior FERC staff who are available and can describe ongoing

AMERICAN OVERSIGHT

resilience activities?

Thank you and best,

Ben A Wender
Program Officer
Board on Energy and Environmental Systems
Division on Engineering and Physical Sciences
bwender@nas.edu
[redacted]

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Friday, February 2, 2018 11:43 AM
**To:** Wender, Ben <BWender@nas.edu>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>
**Subject:** RE: Invitation to present at National Academies of Sciences meeting of Board on Energy

Mr. Wender,

Thank you very much for your request. The Chairman appreciates the invitation, but unfortunately, he will not be available to speak at the National Academies of Sciences, Engineering, and Medicine's meeting in DC on March 13th.

Thank you,

Tracy Adamsky
Confidential Assistant
Office of Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
tracy.adamsky@ferc.gov
(202) 502-6821

**From:** Wender, Ben [mailto:BWender@nas.edu]
**Sent:** Wednesday, January 31, 2018 10:58 AM
**To:** Kevin McIntyre <Kevin.McIntyre@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Cc:** Kerxhalli-Kleinfield, Michaela <MKerxhalliKleinfield@nas.edu>; Holmes, John <JHolmes@nas.edu>
**Subject:** Invitation to present at National Academies of Sciences meeting of Board on Energy

Dear Chairman McIntyre and Chief of Staff Pugliese;

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

The National Academies of Sciences, Engineering, and Medicine's Board on Energy and Environmental Systems is meeting in Washington DC on March 13th, 2018, and would be honored if you would join us to present on the ongoing activities at FERC related to energy system resilience and market compensation for different resilience attributes. The Board would also be interested in any comments about the recently completed study for your office "Enhancing the Resilience of the Nation's Electricity System". I am happy to share additional prompts if you are interested.

The current members of the Board are listed below, and many have expressed strong interest in hearing from you.

Please let me know if you are available to present on the afternoon of March 13th, and if there are preferred times for you to join.

Thank you very much for your consideration,

Ben Wender
Program Officer
Board on Energy and Environmental Systems
Division on Engineering and Physical Sciences
bwender@nas.edu
[redacted]

Current BEES Members:
**JARED COHON, NAE,** Carnegie Mellon University, *Chair*
**DAVID ALLEN, NAE,** University of Texas, Austin
**W. TERRY BOSTON, NAE,** GridLiance GP, LLC and Grid Protection Alliance
**WILLIAM BRINKMAN, NAS,** Princeton University, Princeton, New Jersey
**BARBARA KATES-GARNICK,** Tufts University, Boston, Massachusetts
**JOANN MILLIKEN,** Independent Consultant, Alexandria, Virginia
**MARGO OGE,** Office of Transportation and Air Quality, Environmental Protection Agency, McLean, Virginia
**MICHAEL RAMAGE, NAE,** ExxonMobil Research and Engineering Company (retired), New York City
**DOROTHY ROBYN,** Consultant, Washington, D.C.
**KELLY SIMS-GALLAGHER,** The Fletcher School, Tufts University, Medford, Massachusetts
**JOHN WALL, NAE,** Cummins Inc (retired), Belvedere, California
**ROBERT WEISENMILLER,** California Energy Commission, Sacramento, California

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Brown, Maryam S
**To:** Travis Fisher
**Subject:** RE: Just saying...
**Date:** Tuesday, July 17, 2018 10:12:39 AM

---

But FWIW, my regulatory team was really impressed with the surgical talker. I got the following from them this morning....

Both Freeport (PF11-2) and Sabine Pass (CP11-72) export projects were before the Commission for most of 2011. Also, Corpus Christi (PF12-3) and Excelerate Aguirre (PF12-4) started their pre-filing proceedings in December 2011 to make four export terminals pending before FERC in 2011. There were also three import terminals pending in 2011 (although they were never exactly winners - Oregon LNG and Calais and Downeast in Maine).

To make this statement accurate, you would have to exclude both the pending import terminal projects and the pending pre-filing export projects in 2011. In that case, yes, there was one formal application for an export terminal pending in 2011. He picked maybe the slowest time for LNG in the past twenty years when everyone in the market was reeling from the shale boom and fundamentally re-thinking their business model.

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Tuesday, July 17, 2018 8:53 AM
**To:** Brown, Maryam S <MSBrown@Sempra.com>
**Subject:** [EXTERNAL] RE: Just saying...

And a good morning to you too, Maryam!

**From:** Brown, Maryam S [mailto:MSBrown@Sempra.com]
**Sent:** Tuesday, July 17, 2018 8:14 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** Just saying...

There were 16 LNG IMPORT terminals pending in 2007 and FERC was getting them reviewed in about a year. But I get it, using 2011 as your reference gives you your talking point.

## Top FERC aide outlines priorities to state regulators

Rod Kuckro, E&E News reporter
Published: Tuesday, July 17, 2018

SCOTTSDALE, Ariz. — A senior adviser to the nation's top energy regulator says his boss is taking a deliberative, record-based approach to the top challenges facing the Federal Energy Regulatory Commission, which he leads.

"I'm from the government, and I'm here to help," Travis Fisher, who advises FERC Chairman Kevin

AMERICAN OVERSIGHT

McIntyre, said to laughter from attendees at a breakfast here yesterday sponsored by the Consumer Energy Alliance during the summer meeting of the National Association of Regulatory Utility Commissioners. "No, that is what I'm trying to deliver" on behalf of FERC, he said.



Travis Fisher. Fisher/LinkedIn

McIntyre has three clear priorities, Fisher said — resilience, infrastructure and reform of the Public Utility Regulatory Policies Act (PURPA).

"Every time the chairman speaks, the top priority is resilience. Some of that is coming over from [the Department of Energy], and some of that is his own review of the record in front of us," Fisher said.

After FERC early this year rejected a request from Energy Secretary Rick Perry to subsidize coal and nuclear power plants, the commission launched its own broad inquiry into the resilience of regional transmission grids (***Energywire***, Jan. 9).

Fisher came to FERC from DOE, where he oversaw a staff report that pointed to natural gas as the leading driver of coal plant closures this decade. That report was used as the basis for Perry's request that FERC rejected (***E&E News PM***, April 2).

"We are going through all the comments and taking a deep dive on that issue" to "sort out what is appropriate for us to act on," Fisher said of the resilience inquiry at FERC.

"Some folks have asked, 'With all the stuff coming out of DOE, is FERC still working on this issue; is this still a top priority?' Yes, it's still a top priority.

"We want to develop the record," Fisher said.

Commissioners are "trying to reach a common understanding" on things such as a definition of resilience and "what exactly are we talking about?" he said.

In the "resilience space," Fisher said, "a whole lot [is] happening at the distribution level, and we recognize that that's a state issue."

"We're not going for a one-size-fits-all solution; I don't think FERC has a silver bullet," he said.

An open question is "what steps and at what point FERC will need to take action, because it was unclear at the point of the Jan. 8 action that it was imperative that we act within our statutory authority," Fisher said.

**FERC facing 'incredible' volume of work on gas infrastructure**

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

The surfeit of natural gas being produced in the United States through hydraulic fracturing advances has caused a spike in proposals for pipelines and liquefied natural gas terminals.

Right now, there are 15 LNG projects requiring FERC approval, 13 of which are for export facilities, Fisher said. By contrast, there was but one application before the agency in 2011.

"So the volume of work is incredible. We need to take steps to get moving and adjust to that new world; I can assure you we're doing everything we can to speed it up. When the volume [of applications] was lower, it was a simpler process," he said.

FERC splits responsibility with review of LNG projects with DOE, which evaluates economic need while FERC looks at potential environmental and safety impacts.

"One of the hurdles is getting the right personnel to do the right analysis — who can do the modeling on where spills [could] go, where might they ignite — it's very complicated stuff," Fisher said, adding that another hurdle is that there are some "who don't necessarily want us to be doing this work."

To handle the extra work, FERC is looking at using hiring authorities it has not used in the past, he said. There also is "some conversation about under what scenarios it would it be acceptable to hire a third party and how exactly would that work."

According to Fisher, McIntyre believes "it's a completely different world than it was in 1978," when Congress enacted PURPA after oil prices skyrocketed in the wake of the 1973 Arab oil embargo. The statute aimed to encourage conservation, more reliance on domestic energy sources and, in particular, renewable energy technologies.

That is why McIntyre in May launched a new review of the law, Fisher said (***Energywire***, May 18).

"I can't say exactly what we're going to do, how we're to act on PURPA," Fisher said. But, he said, "we owe it to folks to re-evaluate these things as the facts on the ground change."

FERC held a technical conference in 2016 on PURPA reforms, and that docket is still open, he said, noting that the Edison Electric Institute has recently submitted comments on possible changes. "We do read them," he said, urging others to weigh in.

Trying to repair perceived inequities in how state and regional power markets operate is another issue facing FERC.

"An important thing for this chairman is to review all the facts, not to prejudge anything and not to go into it knowing what the outcome is," Fisher said.

"It's an incredibly tough problem. If you're a large nuclear plant or large coal plant, it's not pretty out there. We need to acknowledge that.

"There's a line there where we can't touch what states are doing. I don't think there's any appetite to change that approach per se. We're trying to do what we can to fix the markets," he said.

But "you know it's not FERC's job to figure out an ideal [generation] resource mix," he said.

Bruce Walker, DOE's assistant secretary for electricity, was slated to give a morning keynote to NARUC attendees and have an ensuing dialogue with members on electricity and natural gas issues.

But Walker ran into travel snags and had to cancel. Instead, he sent remarks recorded on his cellphone

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

pledging a collaborative relationship with state regulators, especially on combating physical and cyber threats to critical infrastructure and national security.

---

This email originated outside of Sempra Energy. Be cautious of attachments, web links, or requests for information.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Koslow Alyssa P (Aly)
**To:** Travis Fisher
**Subject:** Re: Meeting with SRP CEO Mike Hummel
**Date:** Tuesday, July 31, 2018 9:29:28 PM

---

So glad that works, Travis. And yes, by all means, please invite other staff members. I'll send over bios ASAP. Looking forward to seeing you (and your colleagues next week). Please let me know if you need anything from us in advance.

Regards,
Aly

On July 31, 2018 at 4:59:57 PM MST, Travis Fisher <Travis.Fisher@ferc.gov> wrote:

***** SRP EXTERNAL EMAIL WARNING: EXERCISE CAUTION WHEN HANDLING UNEXPECTED EMAILS. REPORT ANYTHING SUSPICIOUS. *****

That should work really well for me. Is it alright if I invite other folks from the Chairman's office?

On Jul 31, 2018, at 5:26 PM, Koslow Alyssa P (Aly) <Aly.Koslow@srpnet.com> wrote:

> Hi Travis,
>
> Thanks so much for getting back to me. Mike is meeting with Commissioner Glick at 2:30 on the 9th so afternoon on the 9th might end up working out perfectly. Does 3:30pm work for you?
>
> Thanks again,
>
> Aly
>
> **From:** Travis Fisher <Travis.Fisher@ferc.gov>
> **Sent:** Tuesday, July 31, 2018 2:09 PM
> **To:** Koslow Alyssa P (Aly) <Aly.Koslow@srpnet.com>
> **Subject:** RE: Meeting with SRP CEO Mike Hummel
>
> ***** SRP EXTERNAL EMAIL WARNING: EXERCISE CAUTION**

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**WHEN HANDLING UNEXPECTED EMAILS. REPORT ANYTHING SUSPICIOUS. ***

Hi Aly. Sorry to miss your calls today.

I think I can make this work either later in the day on the 9th or just about any time on the 10th (until about 3:30). Let me know what works best for you guys.

**From:** Koslow Alyssa P (Aly) [mailto:Aly.Koslow@srpnet.com]
**Sent:** Tuesday, July 31, 2018 1:20 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** Meeting with SRP CEO Mike Hummel

Hi Travis,

My name is Aly Koslow and I am a senior policy analyst at SRP. As you may know, SRP has a new CEO, Mike Hummel (I believe you may have connected with him a few months ago). Mike is going to be in DC next week and if possible would like to meet with you to discuss western market issues and coal developments. I understand August is a difficult time as many people take vacation, but was wondering if you will be in the office and available to take a meeting either Thursday the 9th or Friday the 10th? I also realize this is very short notice, so completely appreciate if you are already fully committed. Please feel free to call or email me if you have any questions.

Thanks very much in advance,

Aly

**Alyssa (Aly) Koslow, Esq.**

Sr. Regulatory Analyst

SRP | Regulatory Policy

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**P:** (602) 236-8104 | **M:** [redacted]

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Travis Fisher
**To:** Jennifer Butler; Joe Nichols; davidstevenson@caesarrodney.org; hayes@mackinac.org
**Cc:** Angela Amos
**Subject:** RE: Mtg request re: SPN E&E Fly-in
**Date:** Friday, July 20, 2018 12:50:00 PM
**Attachments:** CoalDispatchWest_Final_08182017.pdf

---

Hi Jennifer and SPN folks,

Thanks again for coming to visit FERC. I made a few notes to follow up with certain publicly-available information and I wanted to make good on that offer.

For David, I wanted to follow up on:

- Cycling: see Appendix C here (report page 154, PDF page 160): https://www.energy.gov/sites/prod/files/2017/08/f36/Staff%20Report%20on%20Electricity%20Markets%20and%20Reliability_0.pdf
- The Role of Coal in the West (also connected to cycling issues): https://westernenergyboard.org/2017/08/wieb-webinar-on-the-role-of-coal-in-the-west/ (PDF sent to me from WIEB is attached)
- Point of contact for electricity data at EIA: Stan.Kaplan@eia.gov

For Jason, I wanted to follow up on the capacity value of solar PV at increasing levels of penetration:

- The DOE grid study gets into this issue in Section 4.1 and especially Figure 4.3 (borrowed from NERC): https://www.energy.gov/sites/prod/files/2017/08/f36/Staff%20Report%20on%20Electricity%20Markets%20and%20Reliability_0.pdf
- LBNL (usually together with NREL) has some research in this area: http://eta-publications.lbl.gov/sites/default/files/capacity_value_solar_pre-print.pdf

Let me know how else I can help.

Best,
Travis

**From:** Jennifer Butler [mailto:butler@spn.org]
**Sent:** Friday, July 13, 2018 11:11 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Cc:** Joe Nichols <joe@buckeyeinstitute.org>
**Subject:** Re: Mtg request re: SPN E&E Fly-in

Look forward to our meeting on Tuesday. Thanks for making the time. Here is the finalized it list of attendees:

- Buckeye Institute, Ohio - Joe Nichols
- Caesar Rodney Institute, Delaware - David Stevenson
- Center for the American Experiment, Minnesota - Isaac Orr
- Independence Institute, Colorado - Brit Naas
- Mackinac Center for Public Policy, Michigan - Jason Hayes
- Montana Policy Institute - Brent Mead
- Property and Environment Research Center, nationwide - Hannah Downey
- Sutherland Institute, Utah - Matt Anderson
- Thomas Jefferson Institute, Virginia - Michael Thompson
- Washington Policy Center - Todd Myers
- Jennifer Butler, State Policy Network

Jennifer Butler
State Policy Network
cell [redacted]
Butler@spn.org

Sent from my iPad

On Jul 6, 2018, at 3:09 PM, Travis Fisher <Travis.Fisher@ferc.gov> wrote:

> Hi Jennifer, 4pm on the 17th works great. And you have the right email address. As for our physical address, we're at 888 First Street NE, which is just a couple blocks north of Union Station. You're right that we're close to H street – the nearest cross street for us is First Street NE at K Street NE.
>
> Let me know if I can provide any more information.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Jennifer Butler [mailto:butler@spn.org]
**Sent:** Friday, July 06, 2018 2:07 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Cc:** Joe Nichols <joe@buckeyeinstitute.org>
**Subject:** Re: Mtg request re: SPN E&E Fly-in

Let's do a 4:00 pm on the 17th - let me know if there is a different email I should send this to but here is the list of attendees:

- Buckeye Institute, Ohio - Joe Nichols
- Caesar Rodney Institute, Delaware - David Stevenson
- Center for the American Experiment, Minnesota - Isaac Orr
- Independence Institute, Colorado - Brit Naas
- Mackinac Center for Public Policy, Michigan - Jason Hayes
- Montana Policy Institute - Brent Mead
- Property and Environment Research Center, nationwide - Hannah Downey
- Sutherland Institute, Utah - Matt Anderson
- Thomas Jefferson Institute, Virginia - Michael Thompson
- Washington Policy Center - Todd Myers
- Jennifer Butler, State Policy Network

Are your offices off H-street near union station?

Thank you!!

Jennifer Butler
State Policy Network
cell [redacted]
Butler@spn.org

Sent from my iPad

On Jul 6, 2018, at 12:00 PM, Travis Fisher <Travis.Fisher@ferc.gov> wrote:

> Thanks for flagging this, Joe. I'm not the best at checking my personal email – sorry Jennifer!
>
> It turns out I am traveling on the 16th, but I'd love to meet with this group. so the last meeting on the 17th would work best for me. I tend to stay in the office until 6 or later so a 4pm or even 5pm start would be ok on my end.
>
> Let me know!
>
> **From:** Joe Nichols [mailto:joe@buckeyeinstitute.org]
> **Sent:** Friday, July 06, 2018 11:18 AM
> **To:** Travis Fisher <Travis.Fisher@ferc.gov>
> **Subject:** Fwd: Mtg request re: SPN E&E Fly-in
>
> Travis--Wanted to make sure you saw the message from Jen Butler of SPN pasted below. -Joe
>
> ---
>
> Sorry for the delay - been trying to figure out how our days are shaping up. I understand you might be traveling on the 16th so the 17th is best. We could do it FIRST think in the morning - 8:30 (or earlier) to 9:30 or last meeting of the day around 3:30 / 4:00 pm. Do any of those times

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

work? If not, we might able to do it around lunchtime - 12:30.

Jennifer Butler
State Policy Network
cell [redacted]
Butler@spn.org

---

Joe Nichols
*Director of Donor Relations*
**The Buckeye Institute**
88 East Broad Street, Suite 1120 | Columbus, Ohio 43215
[redacted] | BuckeyeInstitute.org

---------- Forwarded message ----------
From: **Jennifer Butler** <butler@spn.org>
Date: Thu, Jul 5, 2018 at 3:44 PM
Subject: Re: Mtg request re: SPN E&E Fly-in
To: Travis Fisher <[redacted]
Cc: Joe Nichols <joe@buckeyeinstitute.org>

Sorry for the delay - been trying to figure out how our days are shaping up. I understand you might be traveling on the 16th so the 17th is best. We could do it FIRST think in the morning - 8:30 (or earlier) to 9:30 or last meeting of the day around 3:30 / 4:00 pm. Do any of those times work? If not, we might able to do it around lunchtime - 12:30.

Jennifer Butler
State Policy Network
cell [redacted]
Butler@spn.org

Sent from my iPad

On Jun 28, 2018, at 2:25 PM, Travis Fisher <[redacted]> wrote:

> Hey Joe! I'm more than happy to meet with you all on July 16th or 17th. The only scheduling conflict I have so far is a 9am-11am meeting on the 17th.
>
> Would you send an email to my FERC account so I can forward it to some folks that might join us? That's travis.fisher@ferc.gov
>
> On Thu, Jun 28, 2018 at 11:15 AM, Joe Nichols <joe@buckeyeinstitute.org> wrote:
>
> Travis,
>
> Hope all is well at FERC.
>
> We have a good group of state think tank policy experts coming into town July 16 and 17th. Would you and/or any colleagues have some time then to talk with us about the latest on your big issues? I'm thinking things like proposed and recent design changes to restructured markets, grid security, support for baseload plants, pipeline reviews, etc.
>
> Representatives from the following organizations / states will be in attendance:
>
> The Buckeye Institute, Ohio (me)
> Caesar Rodney Institute, Delaware
> Center for the American Experiment, Minnesota
> Independence Institute, Colorado
> Mackinac Center for Public Policy, Michigan
> Montana Policy Institute
> Palmetto Promise, South Carolina (tentative)
> Property and Environment Research Center, national
> Sutherland Institute, Utah
> Thomas Jefferson Institute, Virginia
> Washington Policy Center
>
> And also the wonderful Jennifer Butler of SPN, who is cc'd on this e-mail.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

-Joe

PS- [redacted]

Joe Nichols
*Director of Donor Relations*
**The Buckeye Institute**
88 East Broad Street, Suite 1120 | Columbus, Ohio 43215
[redacted] | BuckeyeInstitute.org

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Fwu, Melissa E. EOP/WHO
**To:** Anthony Pugliese
**Subject:** RE: Neil Speaking at South Asian Youth Symposium
**Date:** Saturday, March 3, 2018 12:01:51 PM

---

Aww, too bad!

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Friday, March 2, 2018 8:02 PM
**To:** Fwu, Melissa E. EOP/WHO <Melissa.E.Fwu@who.eop.gov>
**Subject:** Re: Neil Speaking at South Asian Youth Symposium

Bad news he will be in India!!

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission

On Mar 2, 2018, at 11:28 AM, Fwu, Melissa E. EOP/WHO <Melissa.E.Fwu@who.eop.gov> wrote:

> Hey, Anthony,
>
> Keeping my fingers crossed that Neil's still in town next Thursday! We're bringing in 170 South Asian "youth" for a briefing, and I think he would be such a rock start to them!
>
> South Asian Youth Symposium
> Thursday, March 8
> White House, South Court Auditorium
> 12:15pm – 1:45pm
>
> Best,
>
> Melissa Fwu
> Office of Public Liaison
> (202) 395-7770

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Locetta, Jennifer R. EOP/WHO
**To:** Anthony Pugliese
**Subject:** RE: PPO issues
**Date:** Thursday, March 1, 2018 1:31:15 PM

---

Hi Anthony,

I tried to call a little while ago. I have a couple of schedule gaps and will try to call again in between my meetings.

Jennifer

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Thursday, March 1, 2018 12:03 PM
**To:** Locetta, Jennifer R. EOP/WHO <Jennifer.R.Locetta@who.eop.gov>
**Subject:** PPO issues

Hey Jennifer,
How are you? I have been trying to get a hold of you to discuss a few work issues. Could you give me a ring at [redacted]

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Travis Fisher
**To:** Kaplan, Stan
**Subject:** RE: Pre-2002 power plant retirements
**Date:** Tuesday, July 24, 2018 1:31:00 PM

---

Thanks Stan. As far as I know, we're all set for now. I won't be shy about bugging you in the future though.

In that vein, I recently gave your email to an energy researcher from a state-level think tank. His name is David Stevenson, he's from Delaware, and his interest was in generation costs.

**From:** Kaplan, Stan [mailto:Stan.Kaplan@eia.gov]
**Sent:** Tuesday, July 10, 2018 2:17 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Subject:** RE: Pre-2002 power plant retirements

Just double-checking – did your folks get what they needed?

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Thursday, June 21, 2018 3:49 PM
**To:** Kaplan, Stan <Stan.Kaplan@eia.gov>
**Cc:** Jonathan Cook <Jonathan.Cook@ferc.gov>; David Burns <David.Burns@ferc.gov>; Leonard Tao <Leonard.Tao@ferc.gov>; McGrath, Glenn <Glenn.McGrath@eia.gov>; Lee, April <April.Lee@eia.gov>
**Subject:** RE: Pre-2002 power plant retirements

Going back to a plant with an in-service year of 1896—seek and ye shall find, huh? Thanks so much, Stan!

**From:** Kaplan, Stan [mailto:Stan.Kaplan@eia.gov]
**Sent:** Thursday, June 21, 2018 3:43 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Cc:** Jonathan Cook <Jonathan.Cook@ferc.gov>; David Burns <David.Burns@ferc.gov>; Leonard Tao <Leonard.Tao@ferc.gov>; McGrath, Glenn <Glenn.McGrath@eia.gov>; Lee, April <April.Lee@eia.gov>
**Subject:** RE: Pre-2002 power plant retirements

Attached are the old "unofficial" retirement files that I mentioned in my prior email. They were easier to find than I expected.

**From:** Kaplan, Stan
**Sent:** Thursday, June 21, 2018 3:38 PM
**To:** 'Travis Fisher' <Travis.Fisher@ferc.gov>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Cc:** Jonathan Cook <Jonathan.Cook@ferc.gov>; David Burns <David.Burns@ferc.gov>; Leonard Tao <Leonard.Tao@ferc.gov>; McGrath, Glenn <Glenn.McGrath@eia.gov>; Lee, April <April.Lee@eia.gov>
**Subject:** RE: Pre-2002 power plant retirements

Power plant retirement data going back farther than 2002 – contact Glenn McGrath, who is copied on this email.

Pre-2002 data files – they were not as thoroughly quality-controlled as the 2002 and after files. There may be problems in particular with data on combined heat and power plants, and industrial and commercial generators generally. I'm also not sure about the consistency of the plant ID numbers.

Back on retirements – I should have a couple of retirement data files that were created quite a few years ago. They are not part of the "official" data files on the website but I have no reason to doubt their accuracy. I should be able to locate the files and send them to you, but maybe not until tomorrow.

Depending on exactly what your folks are trying to do, the hardest problem will be finding information on generating units that retired before EIA came into existence. I have Federal Power Commission information at the aggregate (state) level but nothing at the unit level other than – I'm not making this up – some handwritten records. Another frustration is that for many year plants were characterized not by fuel source, but as steam electric, hydro, and combustion turbine.

The oldest unit-level data I am aware of are the older reports in the Inventory of Power Plants publication series (https://www.eia.gov/electricity/pdfpages/ipp/index.php). The reports go back to 1977 but unfortunately the associated data files – which had a great name, the "GURF files" – are lost.

One other thing that is not directly relevant but I want to take the opportunity to point out – many people do not know that we update the inventory of U.S. generating units every month. If that is ever of value to you the files can be found here: https://www.eia.gov/electricity/data/eia860m/

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Thursday, June 21, 2018 2:44 PM
**To:** Kaplan, Stan <Stan.Kaplan@eia.gov>
**Cc:** Jonathan Cook <Jonathan.Cook@ferc.gov>; David Burns <David.Burns@ferc.gov>; Leonard Tao <Leonard.Tao@ferc.gov>
**Subject:** RE: Pre-2002 power plant retirements

Hi Stan,

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

The grapevine is telling me that Bill Booth retired last month. Are you the right person to direct the below questions to? Any help you can provide would be greatly appreciated.

Thanks,
Travis

**From:** Travis Fisher
**Sent:** Thursday, June 21, 2018 2:14 PM
**To:** 'william.booth@eia.gov' <william.booth@eia.gov>
**Cc:** Jonathan Cook <Jonathan.Cook@ferc.gov>; David Burns <David.Burns@ferc.gov>; Leonard Tao <leonard.tao@ferc.gov>
**Subject:** RE: Pre-2002 power plant retirements

Hi Bill,

Hello from FERC! I was hoping you could point us in the right direction—my colleagues Jon and David here in the Office of Energy Policy and Innovation are looking for power plant retirement data going back farther than 2002. Before I take a deep dive into superseded form 860s, I wanted to check with you to see if there's an easy way to get pre-2002 retirement data.

I also wanted to double-check what the issue was with comparing pre- and post-2002 data—I forgot what the specific snag was there. Can you help us out?

I'm copying Len Tao as well, our Director of the Office of External Affairs, for his awareness. Please feel free to loop in anyone you think would be helpful.

Thanks,
Travis

**From:** David Burns
**Sent:** Thursday, June 21, 2018 9:55 AM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Cc:** Jonathan Cook <Jonathan.Cook@ferc.gov>
**Subject:** Pre-2002 power plant retirements

Hi Travis,

Jon and I are wondering if you have any insight into power plant retirements before 2002, or know of any other data sources that track retirements. We've been looking and have come up empty handed. Our sense is the number of coal retirements before 2002 is pretty small and probably insignificant as a percentage of total coal capacity, but we don't have any data to back that up. If I remember correctly, you had mentioned something about data integrity in EIA 860 pre-2002 as the reason why their data for retirements starts in 2002. Is there limited data prior to 2002 in EIA 860 or other sources? Thanks,

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

David

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Travis Fisher
**To:** Angela Amos
**Subject:** RE: Robb Letter to Industry Leaders
**Date:** Friday, July 6, 2018 4:18:00 PM

[redacted]

**From:** Fritz Hirst [mailto:Fritz.Hirst@nerc.net]
**Sent:** Wednesday, June 27, 2018 10:38 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>; Travis Fisher <Travis.Fisher@ferc.gov>; Angela Amos <Angela.Amos@ferc.gov>
**Cc:** Tina Buzzard <Tina.Buzzard@nerc.net>; Janet Sena <Janet.Sena@nerc.net>
**Subject:** Robb Letter to Industry Leaders

Anthony, Travis, Angela- Jim Robb sent the attached letter to industry leaders outlining his priorities for NERC. He wanted to share this letter with you and the chairman. If you could kindly give this letter to Chairman McIntyre, I'd be most grateful. Thanks! –Fritz

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | 202-557-0508 cell
fritz.hirst@nerc.net
**Reliability | Accountability**

This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tyran, Barbara
**To:** Angela Amos; Carolyn Clarkin; Laura Swett; Nicholas Gladd; Anthony Pugliese
**Subject:** RE: Thanks and nice to meet you
**Date:** Tuesday, March 6, 2018 5:09:30 PM
**Attachments:** EPRI Quick Insight Briefs_March 2018.pdf

Angela, All: Thank you for your time and attention at yesterday's meeting.

Please find attached list of EPRI Quick Insight Briefs with links to papers, including Blockchain Technology. As discussed, the Resiliency Benefit-Cost Analysis will be available in several months.

I look forward to staying in touch and please let me know if I can offer any assistance.

Thanks, Barbara Tyran

**Barbara Bauman Tyran**
**Executive Director, Government & External Relations**
**Electric Power Research Institute**
[redacted]
**btyran@epri.com**

**From:** Angela Amos [mailto:Angela.Amos@ferc.gov]
**Sent:** Monday, March 05, 2018 6:08 PM
**To:** Tyran, Barbara <BTyran@epri.com>
**Subject:** [EXTERNAL] Thanks and nice to meet you

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***.
Hi Barbara,

Thanks for taking time to meet with us today and for your offer to share EPRI's whitepapers, "quick insights," or other research. In the meeting, the Chairman mentioned a particular interest in the previous work on blockchain so if that report is readily available, we'd appreciate it. The advisors' contact info is below.

Angela Amos
angela.amos@ferc.gov

Carolyn Clarkin
carolyn.clarkin@ferc.gov

Laura Swett
laura.swett@ferc.gov

Nic Gladd
nicholas.gladd@ferc.gov

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Anthony Pugliese (Chief of Staff)
anthony.Pugliese@ferc.gov

Thanks again!
Angela

Angela A. Amos
Advisor to Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
angela.amos@ferc.gov
202.502.6676

*** This email message is for the sole use of the intended recipient(s) and may contain information that is confidential, privileged or exempt from disclosure under applicable law. Unless otherwise expressed in this message by the sender or except as may be allowed by separate written agreement between EPRI and recipient or recipient's employer, any review, use, distribution or disclosure by others of this message is prohibited and this message is not intended to be an electronic signature, instrument or anything that may form a legally binding agreement with EPRI. If you are not the intended recipient, please contact the sender by reply email and permanently delete all copies of this message. Please be advised that the message and its contents may be disclosed, accessed and reviewed by the sender's email system administrator and/or provider. ***

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Julie Matson
**To:** USAEE; Travis Fisher
**Subject:** RE: USAEE/IAEE DC Conference - Speaker Correspondence
**Date:** Thursday, July 12, 2018 9:07:05 AM

---

Thank you for your update Travis. I've made these to the conference program and you can now view them live.

Kind regards,
J Matson
USAEE

**From:** USAEE
**Sent:** Wednesday, July 11, 2018 9:44 PM
**To:** Travis Fisher <Travis.Fisher@ferc.gov>
**Cc:** Julie Matson <jmatson@usaee.org>
**Subject:** RE: USAEE/IAEE DC Conference - Speaker Correspondence

Travis,

No worries. Ms. Matson in our office will take care of this.

Julie, please confirm when complete.

Best.

David Williams
Executive Director, USAEE

**From:** Travis Fisher [mailto:Travis.Fisher@ferc.gov]
**Sent:** Wednesday, July 11, 2018 6:05 PM
**To:** USAEE <usaee@usaee.org>
**Subject:** RE: USAEE/IAEE DC Conference - Speaker Correspondence

DC Conference Organizers,

I'd like to flesh out my bio a bit, and I'm hoping I'm not too late. It currently reads:

> Travis Fisher
>
> Travis Fisher is a Senior Advisor and economist at with the Federal Energy Regulatory Commission (FERC).
>
> Fisher graduated with a B.S. and M.E. in Economics North Carolina State University.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

I would like it to read:

> Travis Fisher joined the Federal Energy Regulatory Commission (FERC) as a Senior Advisor in April 2018.
>
> Fisher has over 12 years of experience across a wide range of energy issues. Most recently, he served at the U.S. Department of Energy (DOE) as a Senior Advisor to the Assistant Secretary for the Office of Electricity. In that role, he was responsible for several research projects, including leading the Department's efforts on the August 2017 *Staff Report to the Secretary on Electricity Markets and Reliability*.
>
> Prior to his work at DOE, Fisher oversaw and expanded research on electricity issues at the Institute for Energy Research, a non-profit think tank headquartered in Washington, DC. His career began at FERC, where he spent seven years as an Economist in the Office of Energy Market Regulation.
>
> He holds a B.S. and M.E. in Economics from North Carolina State University.

Thank you so much. Let me know if you have any questions.

Best,
Travis

---------- Forwarded message ----------
From: <usaee@usaee.org>
Date: Tue, Jun 19, 2018 at 12:31 PM
Subject: USAEE/IAEE DC Conference - Speaker Correspondence
To: travis.scott.fisher@gmail.com



>  
> Memo To: Travis Fisher
>  
> From: David Williams
> Executive Director
> USAEE
>  
> Re: USAEE/IAEE North American Conference
> "Evolving Energy Realities"
> Washington, DC - September 23-26, 2018
>
> We are pleased to have you as a participant in the program of the coming

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

36th USAEE/IAEE North American Conference to be held at the Crystal City Hilton Hotel, Washington, DC - September 23-26, 2018. This letter will inform you of several important matters that need your immediate attention. These are as follows:

**Speaking Times and Listing in the Final Program:** Located at http://www.usaee.org/usaee2018/program.aspx you will find our conference program. Please locate your listing in the program and verify that we have the correct spelling of your name, title and organization/affiliation. If any changes in your listing are needed, please email these to USAEE Conference Headquarters - (e) usaee@usaee.org no later than Friday, July 13. By clicking on your name you will be redirected to your picture and brief biography. If you find this information missing, please provide this by reply email as soon as possible. If we do not hear from you regarding your program listing this will be the way it is printed in our final program handed out to all delegates at the conference. Please note that your actual meeting room at the Crystal City Hilton Hotel is subject to change. However, the day and time of your presentation should not change from this point forward.

**Registration:**

1. As a Plenary Session/Workshop speaker your conference registration fees are waived. You must, however, complete a conference registration form for processing your name badge and clearance into all meal/social functions. There are two ways to register complimentary. You may complete the attached conference registration form, mark "complimentary speaker" in the total due column and forward to USAEE Conference Headquarters no later than Friday, July 13 by return email. Alternatively you may visit our online registration website at https://www.usaee.org/usaee2018/onlineregistration_complimentary.aspx and follow these instructions:

a) From the "Please pick a registration option" drop down box select the "Plenary Speaker (Complimentary)" option.

b) In the "Primary Registrant" section of the registration form select any tours or workshop event(s) that you wish to attend (NOTE: Your base registration fees are waived; should you wish to attend tours or Workshops you will need to pay the associated fees listed).

c) Click the "Continue" button at the bottom of the page.

d) Step 2 renders a page that shows that your registration fees have been waived, plus any associated fees for tours or Workshops. Complete the rest of the form with your name/address/contact details as well as hotel at which you will be staying.

e) Under the "Method of Payment" section if you are just signing up for registration, leave this section blank and then click the "Submit" button at the bottom of the page. If you have selected tours or a workshop, provide

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

your credit card information and click "Submit" button at the bottom of the page.

If you have any questions regarding registering for the conference please reach out to David Williams by email - usaee@usaee.org

2. Please make sure to pick up your registration kit and name badge during registration hours at the Crystal City Hilton Hotel.

3. All speakers must complete their registration no later than Friday, July 13.

**Hotel Reservations:** A special room block has been reserved at the Crystal City Hilton Hotel, the conference venue. The following room rates apply:

Single/Double Room: $199.00

Note that these rates are exclusive of sales and occupancy tax. We have been told by the Crystal City Hilton Hotel that the hotel will sell out of sleeping rooms soon. If you have yet to make your hotel reservations please do so now by visiting http://www.hilton.com/en/hi/groups/personalized/D/DCANAHF-USE-20180921/index.jhtml?WT.mc_id=POG

**Audio Visual Equipment, Support and Handouts:** All speakers will be provided an LCD projector/computer for presentation of their paper/talk. Please DO NOT send your PowerPoint/PDF presentations in advance of the conference as the conference is not responsible for placing your presentation on the conference supplied computer. If you plan to present utilizing an LCD data-projector, please bring your presentation on a USB memory stick/jump/thumb drive for self-loading on-site at the conference. NOTE: presentations will not be pre-loaded on conference supplied computers - please arrive early to your session to allow time to load your own PowerPoint or PDF presentation. Microsoft Office and Adobe Reader will be installed on all conference-supplied computers. Those with technical questions regarding the audio-visual equipment supplied by the conference may contact David Williams at usaee@usaee.org Plenary Sessio n presiders are requested to check microphones in your meeting room before the start of your session.

**Photography, Video Recording and Release:** By the act of registering and attending this IAEE/USAEE conference, you agree that IAEE/USAEE shall acquire the right to use your name, photograph, video recording, and/or audio recording in reporting on the conference in their publications or website, in publicity for future conferences, or in other reasonable manners for the benefit of the Association(s). You further agree to waive any liability on the part of the IAEE/USAEE, and to hold the IAEE/USAEE harmless, for any damages, injury, or loss of benefits that you incur during my travel to or from or attendance at this conference.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Speaker Presentations on Conference Website:** We would like to place speaker presentations on our conference website prior to the meeting. If you are able to send us a copy of your presentation (PowerPoint slides, Adobe PDF slides and/or Microsoft Word documents or other formats) to usaee@usaee.org prior to the conference we will post this on our website for delegates to view. These documents may also be sent shortly after the close of the conference. Speaker presentations left on conference supplied computers will be placed on our website after the close of the conference for delegates and the public at large to view in an open access format. The Association will bundle a full volume set of the conference presentations/proceedings and offer for resale to the general public.

**Conference Sponsorship:** You are welcome to enhance your participation by sponsoring elements of the conference. Please visit https://www.usaee.org/usaee2018/sponsors.html to learn about sponsorship. One simple way to promote your organization is to display your organization's promotional materials on the conference provided publication tables located throughout the conference. This cost is $1000.00.

**Plenary & Concurrent Session Presiders:** Plenary Session Presiders must verify their session descriptions located at http://www.usaee.org/usaee2018/program.aspx for accuracy. Please submit any session description changes to usaee@usaee.org no later than Friday, July 13. If you are a presider over a Concurrent Session you will receive detailed information next month regarding the line-up of your confirmed speakers and linking you to their online abstracts/papers. Presider guidelines will be emailed to you as well.

**Promotional Support:** If you and your organization can lend assistance in any way to help promote awareness of this conference, we would be most grateful. Please provide the following website link ( http://www.usaee.org/usaee2018/ ) to your colleagues. We would also be pleased to form a link from your website to ours indicating this meeting and the program thereof. Please contact David Williams ( usaee@usaee.org) if you can help support the promotion of this meeting in any capacity.

We look forward to having you as a speaker and/or presider at the 36th USAEE/IAEE North American Conference. If you have any questions regarding the above or other issues, please do not hesitate to contact USAEE Conference Headquarters at (p) 216-464-2785 or usaee@usaee.org

- End -

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Janet Sena
**To:** Tracy Adamsky; Michelle R. Brown; Anthony Pugliese
**Cc:** sdochoda@frcc.com
**Subject:** Request for meeting with Chairman McIntyre
**Date:** Friday, March 9, 2018 10:42:33 AM

---

Stacy Dochoda, President and Chief Executive Officer of the Florida Reliability Coordinating Council would like to request a meeting with Chairman McIntyre to update him on various FRCC regional issues. I've cc'd Stacy so you can work with her directly on a schedule, but understand she would like to meet sometime before the end of April. We appreciate your consideration of this request. I've included a link for more information on the regions:
https://www.nerc.com/AboutNERC/keyplayers/Pages/default.aspx

**Janet Sena**
**Senior Vice President and Director of Policy and External Affairs**
North American Electric Reliability Corporation
1325 G Street NW Suite 600
Washington, DC 20005
202-644-8067 office | [redacted]
janet.sena@nerc.net
**Reliability | Accountability**

This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Tracy Adamsky
**To:** Anthony Pugliese
**Subject:** Rescheduling API Meeting
**Date:** Tuesday, March 13, 2018 12:34:47 PM

---

Hi Anthony.

I rescheduled the API meeting that was supposed to happen on March 20th. You had told me to give you the contact info for the person I was coordinating with because you or the Chairman wanted to apologize for rescheduling. Susan Tackish is the executive assistant to the President and CEO of API, Jack Gerard. Her number is [redacted]

Thanks,
Tracy

**From:** Susan Tackish [mailto:tackishs@api.org]
**Sent:** Tuesday, March 13, 2018 12:31 PM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Todd A. Snitchler <SnitchlerT@api.org>
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Tracy – 3:00pm on April 24th will work for us. Thanks, Susan

---

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Tuesday, March 13, 2018 9:15 AM
**To:** Susan Tackish
**Cc:** Michelle R. Brown; Todd A. Snitchler
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Susan,

How about 3PM on April 24th?

Tracy

**From:** Susan Tackish [mailto:tackishs@api.org]
**Sent:** Monday, March 12, 2018 7:10 PM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Todd A. Snitchler <SnitchlerT@api.org>
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Tracy – as of right now the following days you offered are best for our team:

4/9 Afternoon
4/24 Flexible most of day
4/30 Afternoon

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Thanks,
Susan

---

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Monday, March 12, 2018 3:24 PM
**To:** Susan Tackish
**Cc:** Michelle R. Brown; Todd A. Snitchler
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Susan,

Just wanted to follow up with you about the email I sent on March 5th. The Chairman is no longer able to meet on March 20th and I wanted to reschedule with you. Alternatively, if API Would like to keep their appointment on the 20th and just meet with the Chairman's advisors, that is also an option.

Thanks,
Tracy

**From:** Tracy Adamsky
**Sent:** Monday, March 05, 2018 3:25 PM
**To:** 'Susan Tackish' <tackishs@api.org>
**Cc:** Michelle R. Brown <michelle.brown@ferc.gov>; Todd A. Snitchler <SnitchlerT@api.org>
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Susan,

Unfortunately, something has come up and I will need to reschedule your meeting with Chairman McIntyre. Please let me know if you are available on any of the following days: 4/9, 4/20, 4/23, 4/24, or 4/30. I apologize for the inconvenience.

Thanks,
Tracy

**From:** Susan Tackish [mailto:tackishs@api.org]
**Sent:** Thursday, February 01, 2018 2:55 PM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Todd A. Snitchler <SnitchlerT@api.org>
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Yes, March 20th at 4:30pm will work for us. Joining Jack Gerard for the meeting will be Todd Snitchler and Marty Durbin. I have attached bios for all three. Thank you and please let me know if

AMERICAN OVERSIGHT

you need anything else for this meeting and if there are any special instructions for their arrival at FERC.

Best,
Susan

---

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Thursday, February 01, 2018 2:40 PM
**To:** Susan Tackish
**Cc:** Michelle R. Brown; Todd A. Snitchler
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Could we do 4:30PM on March 20th?

**From:** Susan Tackish [mailto:tackishs@api.org]
**Sent:** Thursday, February 01, 2018 10:17 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Michelle R. Brown <Michelle.Brown@ferc.gov>; Todd A. Snitchler <SnitchlerT@api.org>
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Tracy – that week is fairly open for Mr. Gerard at this point. As of right now, he has the following availability:

3/19: 12:30-2:30pm
3/20: 8:30-10:30am and after 1:00pm
3/21: open
3/23: open

Please let me know what works best for the Chairman and we can get it on the calendar. Our preference would be 3/20 or 3/21 if one of those days will work.

Thanks,
Susan

---

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Thursday, February 01, 2018 9:15 AM
**To:** Susan Tackish
**Cc:** Michelle R. Brown; Todd A. Snitchler
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Susan,

The Chairman would be happy to meet with Mr. Gerard. However, the Chairman's schedule is extremely busy in February and early March. Is there a date later in March that would work for you? Sometime the week of March 19th would be ideal for the Chairman.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Thank you,

Tracy Adamsky
Confidential Assistant
Office of Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
tracy.adamsky@ferc.gov
(202) 502-6821

**From:** Susan Tackish [mailto:tackishs@api.org]
**Sent:** Tuesday, January 23, 2018 2:13 PM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>; Michelle R. Brown <Michelle.Brown@ferc.gov>; Todd A. Snitchler <SnitchlerT@api.org>
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Tracy – I'm just following up on this meeting request. Please let me know when there's a time that might work for the Chairman. Many thanks, Susan

---

**From:** Susan Tackish
**Sent:** Wednesday, January 03, 2018 6:44 PM
**To:** 'Tracy Adamsky'
**Cc:** Anthony Pugliese; Michelle R. Brown; Todd A. Snitchler
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Thanks Tracy. We understand and will follow-up after the 19th to try and schedule a meeting at the Chairman's earliest convenience. Best regards, Susan

**Susan A. Tackish**
EA to the President & CEO

API | 1220 L Street, NW | Washington, DC 20005
[redacted] P | 202.682.8110 F | tackishs@api.org

---

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Friday, December 29, 2017 1:52 PM
**To:** Susan Tackish
**Cc:** Anthony Pugliese; Michelle R. Brown; Todd A. Snitchler
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Susan,

Unfortunately, the Chairman is not available to meet during the first week of January. As you can

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

imagine, his availability is very limited as he gets settled in here at FERC and he is unlikely to be available within the next few weeks. Please circle back with me after January 19th and we can see what his availability looks like at that time.

Thank you,

Tracy Adamsky
Confidential Assistant
Office of Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
tracy.adamsky@ferc.gov
(202) 502-6821

Begin forwarded message:

**From:** Susan Tackish <tackishs@api.org>
**Date:** December 20, 2017 at 4:23:53 PM EST
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Cc:** "Todd A. Snitchler" <SnitchlerT@api.org>
**Subject: RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre**

Hi Anthony – just wanted to check in before the holiday to see if there were any more specifics about possibly locking down a date for the first week in January. Thanks, Susan

---

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Friday, December 15, 2017 10:19 AM
**To:** Susan Tackish
**Cc:** Todd A. Snitchler
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Susan, I think the chairman will be free to meet the first week in January, but are still trying to nail down the specifics. I will ensure you are all on our list.

**From:** Susan Tackish [mailto:tackishs@api.org]
**Sent:** Thursday, December 14, 2017 6:14 PM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Cc:** Todd A. Snitchler <SnitchlerT@api.org>
**Subject:** FW: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Anthony –

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Todd Snitchler asked me to forward this meeting request to you for Jack Gerard. We appreciate your assistance with trying to find a time before the holiday. Thank you and please let me know if you need anything else.

Best regards,
Susan

**Susan A. Tackish**
EA to the President & CEO

API | 1220 L Street, NW | Washington, DC 20005
[redacted]P | 202.682.8110 F | tackishs@api.org

---

**From:** Tracy Adamsky [mailto:Tracy.Adamsky@ferc.gov]
**Sent:** Thursday, December 14, 2017 3:15 PM
**To:** Jack Gerard
**Cc:** Michelle R. Brown; Susan Tackish
**Subject:** RE: gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

Hi Gerard,

I received your request for a meeting with the Chairman and I apologize for not getting back to you sooner. As you can imagine, things have been quite busy for the Chairman and it has taken a little while to get a handle on his availability. He has very limited availability over the next few weeks, but if you'd like, you can circle back with me after the first week of January and we can see how things look then.

Thanks,

Tracy Adamsky
Confidential Assistant
Office of Chairman Kevin J. McIntyre
Federal Energy Regulatory Commission
tracy.adamsky@ferc.gov
(202) 502-6821

**From:** webform@ferc.gov [mailto:webform@ferc.gov]
**Sent:** Friday, December 08, 2017 12:06 PM
**To:** SE Web Team <SEWebTeam@ferc.gov>; Mary O'Driscoll <Mary.O'Driscoll@ferc.gov>; Tracy Adamsky <Tracy.Adamsky@ferc.gov>; Michelle R. Brown <Michelle.Brown@ferc.gov>

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Subject:** gerardj@api.org - Request for a Meeting with Chairman Kevin J. McIntyre

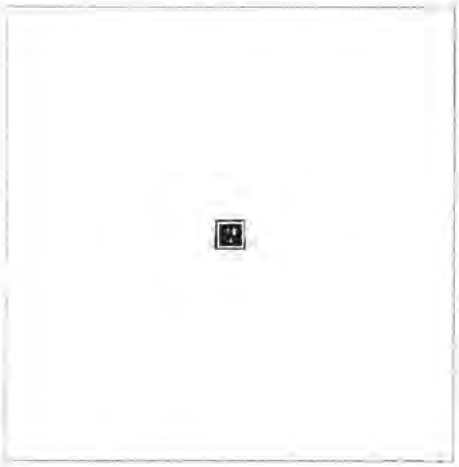
Name: Jack Gerard
Title: President & CEO
Company / Organization: American Petroleum Institute (API)
Phone Number: [redacted]
Web Address:
Email: gerardj@api.org
Purpose of Meeting (Detailed Description): Would like to meet with the Chairman to discuss reliability and resilience, as well as broad pipeline issues. EA Contact: Susan Tackish, [redacted] or tackishs@api.org
Is this matter before the Commission? Yes
Proposed Date for Meeting: before year-end
Alternate Date for Meeting:
Estimate of the Number of people attending: 3

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: "Slav-ish" Devotion
**Date:** Monday, July 16, 2018 4:49:51 PM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## "SLAV-ISH" DEVOTION

This afternoon, President Donald Trump concluded his meeting in Helsinki, Finland with Russian President Vladimir Putin. The two leaders' joint press conference offered the only substantive readout available to date because the leaders' two-hour meeting and the subsequent high-level meal between the two delegations were closed to media (see Figure 1, inside). In an English translation of prepared remarks on the Kremlin website, President Putin described the talks as "quite successful and beneficial." President Trump characterized the event as a "direct, open, deeply productive dialogue."

Several energy-relevant issues surfaced. First, President Trump appeared to back away from criticism he levied against the Nord Stream 2 (NS2) pipeline during last week's NATO summit in Brussels, Belgium, albeit with repeated references to "competition" between U.S. LNG and Russian pipeline gas. Second, and related, President Putin indicated his willingness to continue gas transit to Ukraine despite NS2, although he did not commit to specifics. Third, President Putin emphasized his strong and ongoing support for the *Joint Comprehensive Plan of Action* (JCPOA, the 2015 Iran nuclear deal)

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

---CLEARVIEW---

2018-07-16-Putin_Summit.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

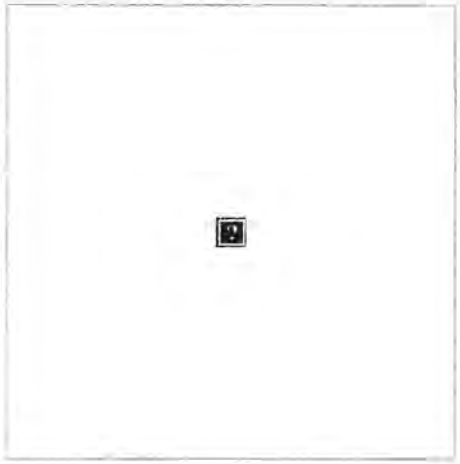
If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: FERC Rejects PJM Capacity Fix, Seeks Bifurcation
**Date:** Monday, July 2, 2018 7:29:45 AM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## FERC REJECTS PJM CAPACITY FIX, SEEKS BIFURCATION

Late on June 29, the Federal Energy Regulatory Commission (FERC) issued a 3-2 order rejecting both of the PJM Interconnection's (PJM's) rate filings that would modify its three-year forward capacity market. We had thought it was possible that the Commission might reject both the Capacity Repricing Proposal and the proposal to apply the existing Minimum Offer Price Rule to existing resources, not just new ones (MOPR-Ex), and it did. We also thought the Commission could seek modifications to the MOPR-Ex in time for adoption by the May 2019 auction, or to send PJM back to the drawing board altogether. It did neither. Instead, the Commission declared the existing capacity market construct in PJM's Tariff unjust and unreasonable **and** announced a plan to adopt a replacement in early January 2019 to have it in place by the May 2019 auction.

Although the Commission also rejected MOPR-Ex, the June 29 order asserts that a solution lies in an even broader expansion of MOPR than the one PJM proposed. FERC advocates for few or no exemptions, and recommends removing the existing exemptions for resources procured under renewable portfolio standards (RPS), receiving federal tax support and other programs, such as the Zero Emissions Credit (ZEC) programs supporting nuclear energy. To protect ratepayers from

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

paying twice for capacity, FERC intends to create an off-ramp by modifying another existing program. This would allow individual, "materially supported" resources to be matched with load and to leave the capacity market altogether, eliminating the possibility that ratepayers would wind up paying for capacity twice. We also think the Commission's planned changes could foreshadow how it might address the impact of potential contracts arising from the Department of Energy (DOE) exercising its authority under either the *Federal Power Act* (FPA) and/or the *Defense Production Act* (DPA).

If the definition of a compromise is a situation that makes all parties unhappy, FERC may have found one. No constituency appears to have prevailed in securing the outcome it preferred in the two proceedings FERC consolidated on June 29. Although the Commission hopes to move forward in January, it has left the door open to a delay of the May 2019 capacity auction to get a fix right. FERC appears to have taken a retention of the *status quo* while the fix is debated off the table; a smaller – if more competitive – capacity market may lie ahead.

---CLEARVIEW---

2018-07-02_FERC_206s_PJM_Capacity_Markets.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

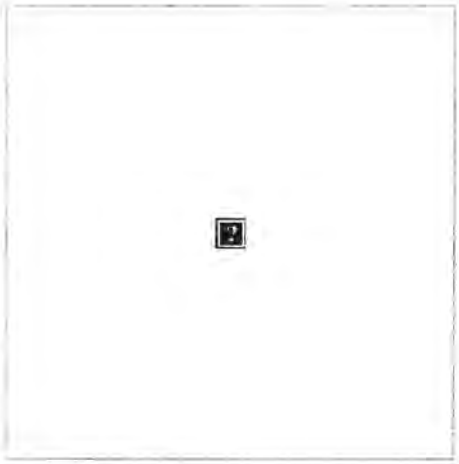
If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: Is Dominion's Millstone Plant in DEEP Trouble?
**Date:** Wednesday, July 25, 2018 9:05:08 AM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## IS DOMINION'S MILLSTONE PLANT IN "DEEP" TROUBLE

We expect that the final notice of request to solicit proposals for new and existing zero carbon resources from the Connecticut Department of Energy and Environmental Protection (DEEP) to exclude language found in the current draft notice that would effectively prohibit Dominion Energy's Millstone nuclear plant from entering into a contract with electric distribution companies until June 1, 2023. As we expected, a strong plurality of commenters claimed that the language in the draft contradicts the explicit intent of the state legislature and the governor and could threaten Connecticut's efforts toward low-emitting resources and greenhouse gas reductions. That said, should the DEEP keep the language excluding Millstone, we do not think Connecticut legislators that oppose the language would be able to pass legislation quickly enough to override the DEEP's final notice. We expect DEEP to meet its July 31 target for finalizing the solicitation.

---CLEARVIEW---

2018-07-25-Connecticut_Contracts.pdf

*Copyright © 2018 ClearView Energy Partners, LLC. All rights reserved.*

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

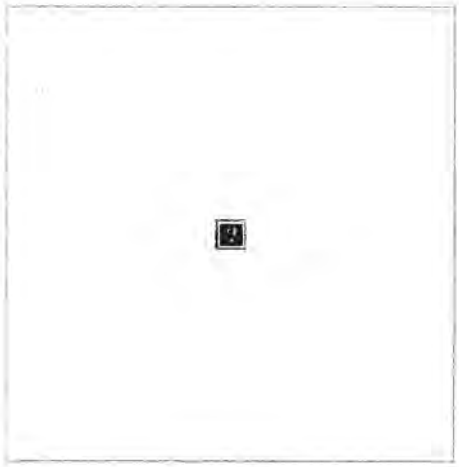
If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: Regulated Energy Playbook -- July
**Date:** Thursday, July 12, 2018 5:32:12 AM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## REGULATED ENERGY PLAYBOOK -- JULY

Welcome to the July 2018 edition of our *Regulated Energy Playbook* containing our one-page synopses of 30 key energy and environmental issues affecting the electricity, renewable power and pipeline sectors.

As is our practice, we include updates of selected reference figures from prior reports providing a ready reference to relevant details.

**Highlights in this month's issue:**

**Policy.** Pruitt's out, Wheeler is in at EPA. Kavanaugh selected to replace Kennedy on the Supreme Court. The deregulatory rollback progresses over the summer with comments on revised scope for NEPA reviews, a likely "inside-the-fence" GHG regulation for power plants, and trimming the sails on ozone requirements among other initiatives. As Powelson is poised to leave FERC with a 2-2 split in August, we take a look at how and when a successor to his seat may be tapped.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Power.** PJM is fated to spend another summer in hot debate with stakeholders as it tackles the paper hearing process to establish a "few or no exception" MOPR and FRR revisions. We still like the odds of appellate circuit courts upholding the ZECs, and expect states and regions to continue implementing subnational policy efforts to support preferred resources whether they be nuclear capability, RPS expansions, storage initiatives, distributed energy resources, or offshore wind. No new news yet on potential DOE plans to bolster "fuel secure" resources. Our transmission ROE estimates are the highest they've been since 2014, but action on the *Emera Maine* remand remains MIA and Southern is trying to beat back a base ROE challenge. Tax reform implementation appears to be moving smoothly in the electric sector.

**Pipelines (natural gas).** Recent partisan splits on natural gas pipeline approvals and rehearing orders suggest that Powelson's departure is most likely to be palpably felt on these issues if FERC deadlocks at 2-2. This is not the first time FERC has seen this alignment, although it can pose challenges for the Chairman. Mountain Valley and Atlantic Coast are laboring under partial stays on their construction operations imposed by the 4th Circuit, and green groups are looking to broaden the work suspensions this summer. The 4th Circuit's injunctions based on faulty Corps- and Interior-issued permits represent a departure from short-lived stays and construction continuing in parallel with litigation. Elsewhere, the slower moving litigation in other appellate courts appears to generally favor pipeline projects if they are already underway. Those that have not begun (such as Northern Access) remain in limbo. Our big question as we await the open meeting agenda to be posted this Thursday for the July 21 monthly FERC open meeting is whether FERC is ready to move forward with the tax reform rule for gas pipes, or whether the uncertainty on the MLP and pass-through policy will continue to linger into August or even beyond Labor Day.

**LNG**. Notwithstanding its prominent role on the energy dominance agenda, the LNG approval process that worked so smoothly at FERC in the past appears to be broken today. We are likely six months or more away from the next project approval. Sabine Pass asks FERC to find proposed marketing arrangements consistent with the NGA.

**Liquids lines.** FERC sends North Dakota Pipeline's proposed index increase to hearing, a relatively rare event. This leads us to wonder when the Commission may advance a long-gestating proposed rule to modify the Indexing regime. L3R gets its certificate of need in Minnesota, and is now tackling remaining "to dos" before entering construction. The summer months remain important for the shape of Line 5's future, and KXL is still working through its legal challenges.

We look forward to your feedback.

---CLEARVIEW---

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

2018-07-11-Regulated_Energy_Playbook.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

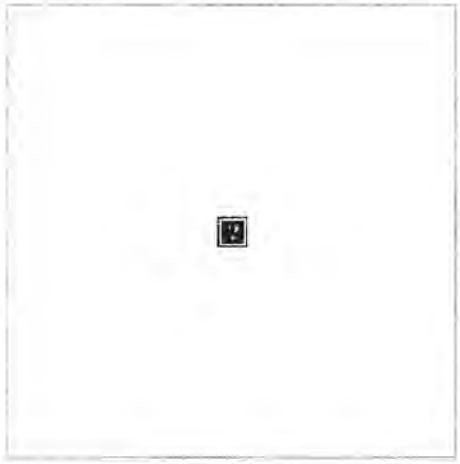
If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: Trade Peace, Russian Pipes and Iranian Proxies
**Date:** Monday, July 30, 2018 9:45:55 AM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## TRADE PEACE, RUSSIAN PIPES AND IRANIAN PROXIES

Looking ahead at August, today's note parses last week's notional U.S.-E.U. trade truce; gauges continuing Congressional momentum towards new Russia sanctions; anticipates further U.S.-China trade escalation; and contemplates the imminent resumption of some U.S. sanctions on Iran that Washington suspended in conjunction with the *2015 Joint Comprehensive Plan of Action* (JCPOA, the Iran nuclear deal).

We reiterate high and rising trade and sanctions risk to energy.

---CLEARVIEW---

2018-07-30-Peace_Pipes_and_Proxies.pdf

*Copyright © 2018 ClearView Energy Partners, LLC. All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

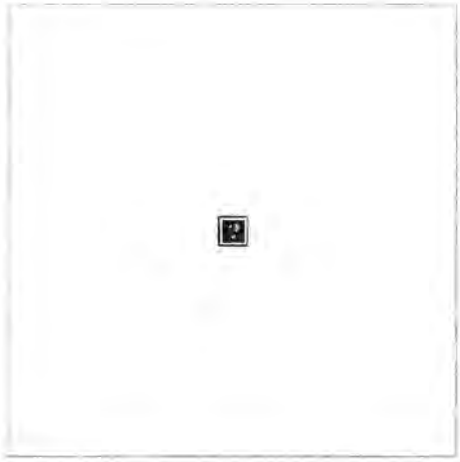
If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: Yellowcake, Black Gold & Congressional Red Lights
**Date:** Monday, July 23, 2018 8:06:07 AM

View this email in your browser



Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## YELLOWCAKE, BLACK GOLD & CONGRESSIONAL RED LIGHTS

On July 18, Commerce Secretary Wilbur Ross accepted a petition from domestic uranium producers to investigate the potential national security threats posed by uranium imports pursuant to Section 232 of the *1962 Trade Expansion Act*, the Trump Administration's fourth such investigation to date (we have discussed steel at length; the others are aluminum and cars).

Clients may recall that we anticipated steel import limits, in part, because declining domestic production fundamentals seemed likely to reinforce economic nationalist leanings in the White House. We would give better-than-even odds for limits on uranium imports for the same reason, even though correspondingly higher fuel costs create negative implications for nuclear generators.

For example, we cursorily estimate that the 25% import quota proposed by petitioners could increase the cost of nuclear generation by between $0.28/MWh and $0.85/MWh. This increment could further pressure nuclear plants operating in states that have not implemented financial supports.

The uranium investigation reinforces our view that the White House remains unlikely to abandon its current protectionist bent (indeed, the opposite seems to be the case). Moreover, despite visibly

AMERICAN OVERSIGHT

growing concerns on Capitol Hill regarding Trump Administration tariffs, we still do not see sufficient momentum among lawmakers to legislatively curtail President Trump's tariff-setting authorities. We reiterate high and rising trade and sanctions risk for the energy sector.

---CLEARVIEW---

2018-07-23-Uranium_and_Trade.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** ClearView Energy Partners, LLC
**To:** Travis Fisher
**Subject:** Research: July Risk Redux - Tighter Supply, Hotter Trade War
**Date:** Friday, July 6, 2018 1:32:59 PM

View this email in your browser

Travis,

*** your personalized link to the full research note follows the body of this e-mail ***

## JULY RISK REDUX -- TIGHTER SUPPLY, HOTTER TRADE WAR

Mounting trade, sanctions and policy risks continue to converge on the energy sector. At 12:01 a.m. Eastern, the U.S. imposed 25% tariffs on $34 B of Chinese goods pursuant to Section 301 of the *1974 Trade Act* and China retaliated in equal measure. We regard further planned escalations directly targeting energy as increasingly likely. Separate retaliations against U.S. steel tariffs also are starting to target energy, as was the case with Turkey, which put duties on U.S. coal, coke and petcoke in June, and Russia, which imposed tariffs today on oil and gas equipment.

This morning, Iranian Foreign Minister Javad Zarif met in Vienna with counterparts from China, France, Germany, Russia, the U.K. and the E.U. regarding their ongoing commitment to the *Joint Comprehensive Plan of Action* (JCPOA, the 2015 nuclear deal). The resulting *communiqué* may have left JCPOA parties some wiggle room for to reduce crude purchases while recommitting to the deal, but it also sets up an unstable equilibrium. Simply put, the Trump Administration goal of "getting as many countries importing Iranian crude down to zero as soon as possible" directly conflicts with Iran's requirement for its continued compliance: ongoing economic upside.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

Next week, we think energy-related, U.S.-E.U. policy divisions could become more pronounced at the July 11-12 NATO summit in Brussels. Similarly, President Donald Trump's planned July 16 summit with Russian President Vladimir Putin in Helsinki also may have potential to inflame trans-Atlantic energy tensions, possibly bringing greater U.S. scrutiny (and increased sanctions risk) to the planned Nord Stream 2 (NS2) natural gas pipeline from Russia to Germany.

Today's update considers these topics and the broader 2H2018 risk horizon (see Figure 1, inside).

---CLEARVIEW---

2018-07-06-Geopolitical_Risk_Redux.pdf

*Copyright © 2018 ClearView Energy Partners, LLC, All rights reserved.*
You are receiving this e-mail because you signed up, or you were signed up by your employer, for ClearView Energy Partners, LLC research notes, reports, blasts and updates.

**Our mailing address is:**
ClearView Energy Partners, LLC
P.O. Box 2703
Washington, DC 20013-2703

Add us to your address book

Please do not forward this e-mail.

If you do not want to receive research in the future, you may unsubscribe from this list.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Balash, Peter C.
**To:** joseph_balash@ios.doe.gov; Travis Fisher; Dean Foreman
**Cc:** tracie_lassiter@ios.doi.gov; Capasso, Karen
**Subject:** Summary of introductory call - USAEE Plenary
**Date:** Tuesday, July 10, 2018 11:25:18 AM

Dear Panelists:

Thanks to Dean Foreman and Travis Fisher for joining the call. Unfortunately Sec. Balash was unavailable. Nonetheless, the call was productive and the following was discussed:

[redacted]

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

[redacted]

I also suggest we meet for breakfast at 7:30 at the Hotel restaurant, to "huddle" about the session, to get comfortable with each other, and answer the question of how to pronounce "Balash" ☺

Thanks again for agreeing to participate! I think our panel will be quite successful in highlighting important policy trends and discussion of their impact.

Warm Regards

Peter

Peter C Balash, Ph.D.
NETL Senior Economist
US Department of Energy
412-386-5753

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Pourreza, Shahriar
**To:** Travis Fisher
**Subject:** The Guggenheim Daily Transmission: FERC, PJM, D, SCG, PPL, SO, DUK, WEC, LNT, NEE - Guggenheim Securities, LLC
**Date:** Tuesday, July 31, 2018 7:52:29 AM
**Attachments:** ATT00001.png
ATT00002.png
ATT00003.png
ATT00004.png
ATT00005.png
ATT00006.png
ATT00007.png
ATT00008.png

GUGGENHEIM

# The Guggenheim Daily Transmission: FERC, PJM, D, SCG, PPL, SO, DUK, WEC, LNT, NEE

Power and Utilities July 31, 2018

Shahriar Pourreza, CFA, Analyst 212 518 5862
Richard Ciciarelli, CFA, Associate 212 518 9135
Sophie Karp, Analyst 212 518 9162

Access this report

**Scroll down for Guggenheim's Non-Deal Roadshow Schedule**

**What's New?**

**PJM - Initial Comments Indicate Divergent Opinions on Capacity Reforms But We Will Get to the Correct Endgame Supporting GenCos (see our note HERE)**

**FERC/PJM** – Requests for rehearing pour in to PJM capacity reform docket at FERC

**D/SCG** – SCE&G lawsuit preliminary injunction hearings begin

**PPL** – Ofgem issues RIIO-2 framework decision

**SO** – Reports indicate SO close to finalizing $1bn tax-equity sale

**D/DUK/SO** – ACP secures temporary suspension of permit to review water crossing plans

**WEC/LNT** – ATC gets green light from PSCW for $120mm Foxconn transmission project

**NEE/SO** – Florida City Gas transaction closes

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**FERC/PJM – Requests for rehearing pour in PJM capacity reform docket at FERC**

- 11 different parties ranging from state PUCs (MD, NJ, IL) to utilities (EXC, PEG, D, FE) to trade groups (OPIS, PJMICC, APPA) file requests for clarification or rehearing on FERC's June 29th order setting in motion changes to PJM's capacity market
- Criticism of the Commission's order range widely, with some parties upset over the timing, others the FRR Alternative, and some who maintain that the previous system was just and reasonable and did not need to be modified
- Harvard Law's Ari Peskoe issued a tweet storm summarizing the legal arguments for each

***Guggenheim takeaway:*** *The quantity and depth of the rehearing requests point to the sensitivity of capacity market reforms; the only parties who sound moderately satisfied at this point are generators. Several stakeholders directly criticized FERC and raised jurisdictional issues, but in our opinion it is too early to say at this time whether things will eventually go to court. We also note that Commissioner Powelson, who is departing the Commission next week, was the deciding vote on the initial June 29th order (Glick and LaFleur dissenting). His absence will be a factor to watch until the Senate can fill his seat.*

**D/SCG – SCE&G lawsuit preliminary injunction hearings begin**

- Preliminary injunction hearings began yesterday with representatives from SCE&G arguing that the company was targeted by legislators and that the rate cut law enacted is unconstitutional
- State lawmakers pointed to claims that SCG knew of issues at V.C. Summer well ahead of time and put $110mm in a trust for executives facilitating the D merger

***Guggenheim takeaway:*** *Still unclear as to how the judge will rule on the matter. We would expect the legal process to play out for some time in the courts. That said, we imagine any new evidence/information that comes to light during this lawsuit, or one of the many pending legal cases, will likely play a role in the upcoming PSC proceedings and likely influence commissioners' decision one way or another.*

**PPL – Ofgem issues RIIO-2 framework decision**

- Key framework included: moving the default length on price controls to 5yrs from 8yrs; more information provided on the cost of debt and equity; a move to CPIH from RPI for inflation; and maintaining existing depreciation schedules, among other items
- Full filing HERE

***Guggenheim takeaway:*** *Moving the default length on price controls to 5yrs from 8yrs is not really seen as a concern and was largely expected, and going to CPIH from RPI is seen as NPV neutral. That said, there remains several questions over returns and other areas in the process as the RIIO-2 price controls are not expected to be implemented until April 2021 for electric transmission and gas transmission/distribution companies while the*

AMERICAN OVERSIGHT

*conclusion of the RIIO-ED1 price control doesn't conclude until 2023. While removing some of the NT uncertainty around RIIO-2 is constructive for PPL, it always seems to us as though another awaits…Stock barely budged and, in our view, some long-term strategic thinking should be in the works.*

**SO – Reports indicate SO close to finalizing $1bn tax-equity sale**

- According to reports, the underlying assets are owned by Southern Power and located in TX, OK, and Maine with a combined output of 1.5GW

***Guggenheim takeaway:*** *Reports would be constructive for SO as it continues to pursue opportunities to optimize sources of equity. We like shares…somewhat undervalued, by our estimates.*

**D/DUK/SO – ACP secures temporary suspension of permit to review water crossing plans**

- ACP developers requested and secured the temporary suspension of a permit from the U.S. Army Corps in West VA

***Guggenheim takeaway:*** *Construction will continue in other areas of WV and NC as the water crossing plans are chalked out. We would fully expect ACP to supply the necessary paperwork to demonstrate it's in compliance. As a reminder, a small delay is not expected to impact the economics of the pipe as the project earns AFUDC.*

**WEC/LNT – ATC gets green light from PSCW for $120mm Foxconn transmission project**

- Project entails new substation and transmission lines to serve Foxconn's projected 230MW of load
- WEC and LNT together own approximately 75% of ATC

***Guggenheim takeaway:*** *The Foxconn project continues to serve as a catalyst for follow-on growth and as a template for other economic development initiatives in IA/WI/MN. Its halo-effect has been highlighted by mgmt. at both WEC (**see HERE**) and LNT (**see HERE**) as an incremental positive for future growth, and we would expect that to continue.*

**NEE/SO – Florida City Gas transaction closes**

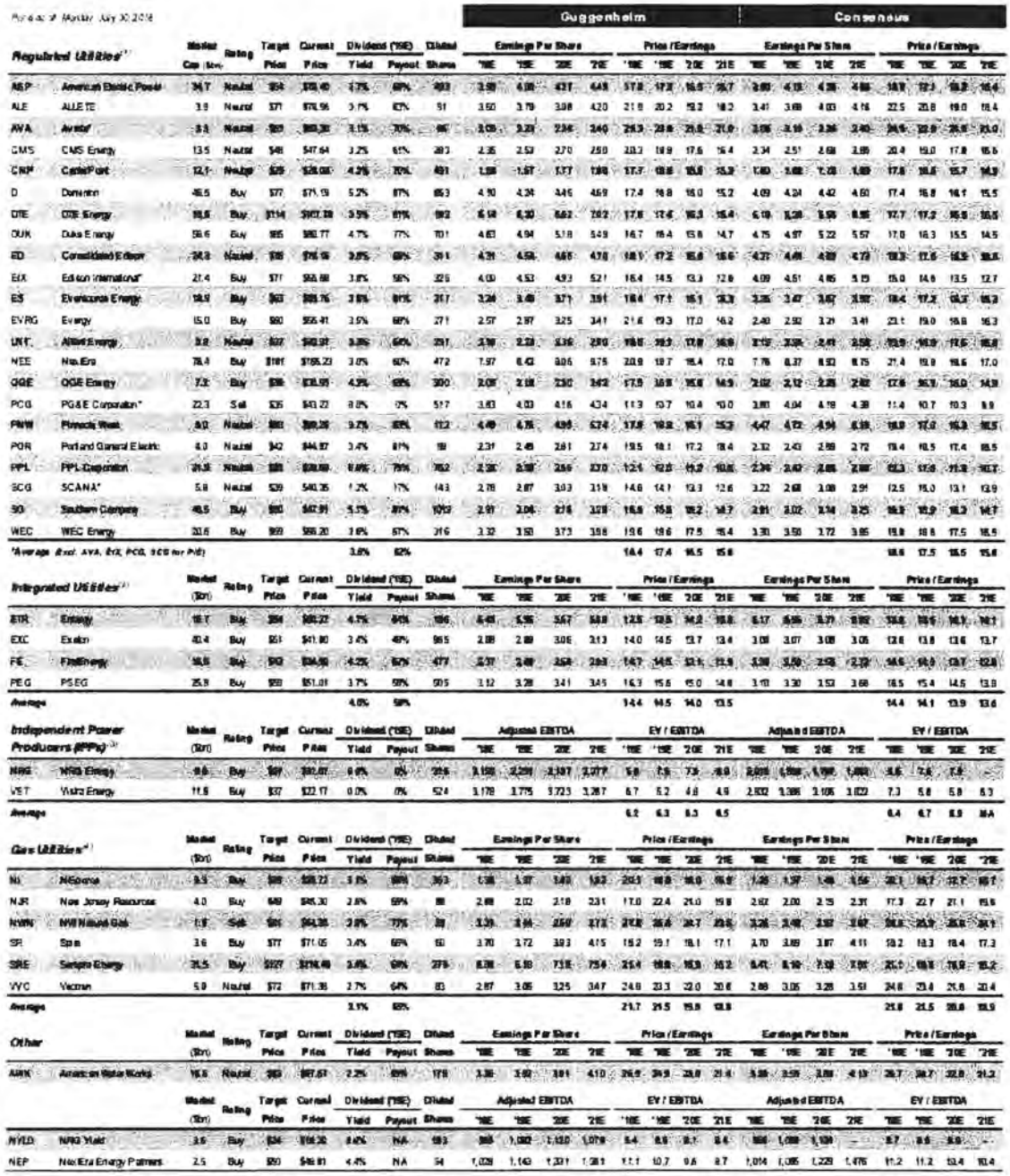
- $530mm deal brings NEE some 110,000 customers and 3,700 miles of pipeline

***Guggenheim takeaway:*** *As expected. See **our thoughts on this deal HERE**.*

## Guggenheim's Power & Utility Comp Sheet

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

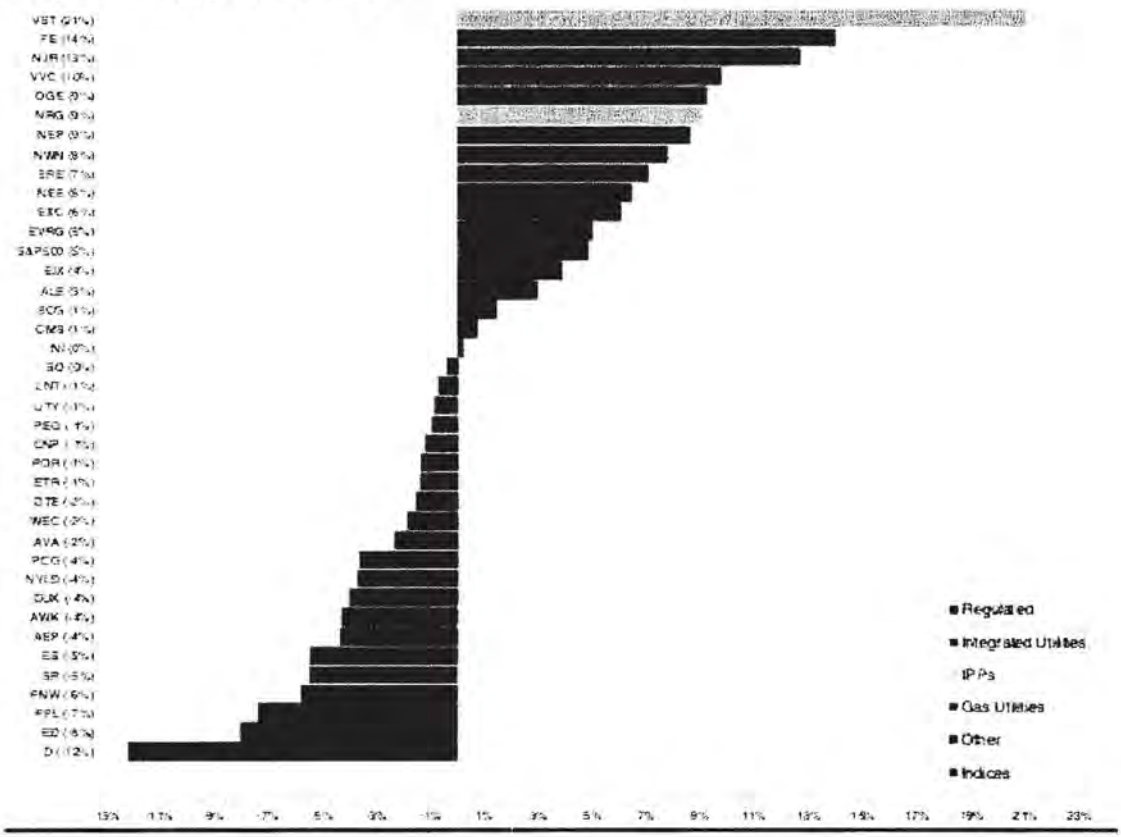


## Share Price Performance (Year-to-Date)

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**Year-to-Date Share Price Performance**




**Source: Bloomberg, Guggenheim Securities, LLC estimates.**

## Guggenheim 2018 Non Deal Roadshow Schedule

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6




| Ticker | Dates | Regions |
|---|---|---|
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| [redacted] | [redacted] | [redacted] |
| **CMS** | 8/7-8/8 | Mid-Atlantic |
| **DUK** | 8/9-8/10 | Midwest |
| **SR** | 8/15-8/16 | Boston/Baltimore |
| **CMS/DTE** *(Michigan bus tour)* | 9/5 | MI |
| **ES** | 9/6 | Boston |
| **EVRG** | 9/18-9/19 | Boston |
| **NEE** | 10/4-10/5 | Midwest |
| **EXC** | 12/5-12/7 | Mid-Atlantic/NYC |

**Michigan Utility Bus Tour**

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

GUGGENHEIM

Enduring Values

Equity Research | Corporate Access

# Michigan Utility Bus Tour

## Please join us for a series of meetings with Utility Commissioners and C- Suite of CMS and DTE in Michigan on September 5

**Date & Location**
Wednesday, September 5, 2018
Michigan

**Preliminary Schedule**
DTE Energy Company (DTE) – Detroit, MI
CMS Energy Corporation (CMS) – Jackson, MI
Michigan Public Service Commission – Lansing, MI

**Logistics**
**Ground Transportation:** we will provide a bus leaving the DTW airport on September 5th and returning to the airport after the meetings

**Flight recommendations to follow*

**Participating Analyst**
**Shar Pourreza,** *Managing Director - Power and Utilities*

---

**EEI Financial Conference Meetings**

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

# 53rd EEI Financial Conference

## Dates

November 11-14, 2018

## Company Dinners/Lunch (Hosted by Guggenheim)

***Sunday, November 11, 2018***
Dinner with **Entergy (ETR)** Senior Management

***Monday, November 12, 2018***
Lunch with **CMS Energy (CMS)** Senior Management

***Monday, November 12, 2018***
Dinner with **Duke (DUK)** Senior Management

## Company Meetings

*More utilities will be added and we will update schedule accordingly*

| Sunday, November 11th | |
|---|---|
| ***Time*** | ***Co.*** |
| 1:15PM | POR |
| 2:00PM | NI |
| 3:30PM | CNP |
| 4:15PM | ES |
| 5:00PM | ED |

| Monday, November 12th | |
|---|---|
| ***Time*** | ***Co.*** |
| 8:00AM | ALE |
| 9:00AM | WEC |
| 10:00AM | NEE |
| 11:00AM | DTE |
| 12:00PM | CMS |
| 1:00PM | FE |
| 2:00PM | D |
| 3:00PM | AEP |
| 4:00PM | SO |
| 5:00PM | SRE |

| Tuesday, November 13th | |
|---|---|
| ***Time*** | ***Co.*** |
| 8:00AM | PPL |
| 9:00AM | LNT |
| 10:00AM | PNW |
| 11:00AM | EIX |
| 12:00PM | PEG |
| 1:00PM | OGE |
| 2:00PM | EXC |
| 3:00PM | EVRG |
| 4:00PM | PCG |

**Key Events Calendar**

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

| Date | Ticker | Event / Proceeding | Utility | State | Docket | Description |
|---|---|---|---|---|---|---|
| 07/30-07/31 | D/SCG | SCE&G lawsuit vs PSC members | SCE&G | SC | 3:15-cv-01796 | Hearings |
| 07/31 | D | DEEP RFP for Millstone | | CT | 18-05-04 | Final RFP expected |
| 07/31 | D/SCG | Merger vote | | SC | | Scana shareholders to vote on D merger proposal |
| 08/01 | FE | FES Settlement | | | | Deadline to have remaining creditors signed on to the settlement agreement |
| 08/02 | D/SCG | Merger Proceeding | SCE&G | SC | D-2017-370-E | Direct company testimony due |
| 08/02 | PJM | Capacity Market Reform | | | | Special Session to discuss PJM response to Capacity Market |
| 08/06 | POG/EIX/SRE | Wildfire legislation | | | AB 33; SB 901; SB 1088; AB 2346; SB819 | Legislative session reconvenes |
| 08/14 | D/SCG | V.C. Summer rate proceeding | SCE&G | SC | D-2017-305-E | ORS and Intervenor testimony due |
| 08/14 | SCG | FOE & Sierra Club vs SCE&G | SCE&G | SC | D-2017-207-E | FOE and Sierra Club testimony |
| 08/15 | AVA | Merger proceedings | Avista Utilities | ID | AVU-E-17-02; AVU-G-17-05 | Company update on progress relating to Hydro One executive governance |
| 08/15 | PJM | Capacity Market Reform | | | | Special Session to discuss PJM response to Capacity Market |
| 08/28 | PJM | Capacity Market Reform | | | | Filing Due to FERC on Capacity Market Reform |
| 08/28 | SRE | SDG&E, SoCalGAS GRC | SDG&E; SoCalGas | CA | A-17-10-007; A-17-10-008 | Evidentiary hearings |
| 08/30 | AVA | Merger Proceedings | Avista Utilities | OR | UM-1897 | Supplemental Testimony due |
| 08/31 | CMS | Consumers Gas GRC | Consumers Gas | MI | U-18424 | Final order due |
| 08/31 | POG/EIX/SRE | Wildfire legislation | | | AB 33; SB 901; SB 1088; AB 2346; SB819 | End of regular legislative session |
| Aug. | ALE | NTEC Decision | Minnesota Power | MN | | Commission decision expected |

***More dates to be added...***

Source: Company filings, Guggenheim Securities, LLC

## *Guggenheim's Forward Commodity Curves*

- *Forward Commodity Curves for Power & Utility Modeling*

## *Key Industry Research*

1. Coal/Nuclear: Will Politics "Trump" Reality
2. *CA Policy Crash Course: Don't Hold Your Breath For a Wildfire Resolution….*
3. *February Meter Reading - Yield "Almost" Catching Up with Utility Valuations; Lowering Our PTs and Looking Beyond Bond Surrogates*
4. *PJM Capacity Auction: Introducing Prelim-2021/22 Pricing Forecasts -- Well…It's Not Getting Much Worse, Projected Pricing Mixed*
5. *Guggenheim-Hosted Power Brunch with State Utility Commissioners*
6. *Checking for a "Pulse" - Regulated Utility Valuations Losing Altitude, Now Fairly Valued vs. Bond Yields, and Showing Subsector Variance*
7. *2018 Outlook: An Absolute Shop Thinking in Relative Terms*
8. *Yo, Adrian! DOE Gets Knocked Down, But Power Market Reform Not Out – One More Round*
9. *Guggenheim EEI Takeaways - Day 1*
10. *Guggenheim EEI Takeaways - Day 2*
11. *Guggenheim EEI Takeaways - Day 3*
12. *Utility and IPP 3Q17 Model Sweep*

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

13. *DOE Texas Tango – Will FERC Dance?*
14. *2Q17 PREVIEW: Benign Earnings Season, but No Shortage of Topics or NT Catalysts to Watch*
15. *AGA Conference Highlights and Management Meeting Takeaways*
16. *2017 Outlook: Riding the Cyclical Wave As It Crashes Through Regulated Utilities*
17. *Launching Coverage and Getting Gassier – Catalyst-Rich but Not a Sector Call*
18. *Boom-Bust: Forget Mid Cycle – Focus on Asset Lives and Cash Flows….Launching on IPPs with Cautious Tone but See Opportunities*
19. *Power Breakfast: Guggenheim-Hosted Commissioner Meetings*
20. *Power Breakfast Part Deux: Guggenheim-Hosted Commissioner Meetings*
21. *PJM Capacity Auction – Introducing 2020/2021 PJM Capacity Auction Forecast – Through the Doomsday Cloud, We See a Silver Lining*
22. *Tax Reform: Lessons, Expectations, and Implications for Utilities from Industry Thought Leaders at ConEd*
23. *Guggenheim Levelized Cost of Energy Analysis – Balance of Power Continues to Shift Toward Gas and Renewables, Irrespective of Policy Direction*
24. *Fundamentals "Trump" Ideology: Our Reaction to the Reaction and Early Look at the New Administration - Not Quite Black & White for Utilities*
25. *IPPs Heating Up for Winter; CF Machines Trading at Unsustainable Yields*
26. *Can It Get Any Worse for Coal? Outlook Up In Smoke: IPPs to Benefit from the Coal Ashes*
27. *Texas Showdown: Has Wave of Coal Retirement Reached Texas?*
28. *Rising Rates? No Problem – Still Like Utilities, But Now Be More Selective Given Recent Performance*

***Key Company Research***

1. SRE – Follow-up Mgmt. Meeting - Crystal Clear Upside and "Active" Optimization Plan…Eventually: the Re-rating Will Come
2. SRE – Analyst Day - It's the Simple Things in Life: One Way or Another, Actively Seeing a Re-Rating Story
3. PEG - Mgmt. NDR: Jersey Strong through the Midwest
4. D/SCG – Testing Dominion's Patience? May Stick This Out…For Now… but Policy-Makers Playing a Dangerous Game
5. *LNT - Mgmt. Roadshow: In Messy Times Everyone Appreciates a "Clean Story"….*
6. *ETR – No Introduction Needed: Analyst Day Highlights Above Avg., Undervalued, Regulated Growth Story w/ Upside*
7. *SRE – "Active" Analyst Day Preview: Keys to Unlocking Value Within Reach?*
8. *OGE/AEP – Okie Dokie in Oklahoma? Depends Which Way the Wind Blows*
9. *EVRG – Click, Click, There's No Place Like Home: Top-tier Growth w/ Buybacks & Solid Risk-Adjusted Upside vs Peers*
10. *VST - Inline Analyst Day Comes with Buybacks, NT Deleveraging - Remains a Step Function.*

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

*Catalyst Driven Story*

11. *NJR – Management Roadshow: Growth Concerns? Nothing to See Here; M&A? Hmm…*
12. *PCG–"Once an Accident, Twice a Coincidence, 3 Times a Habit" Does Inverse Even Matter? Blamed Yet Again by Cal Fire*
13. *PEG Analyst Day: Solid Analyst Day Left No Surprises – Steady As She Goes with Upside Generally Within Expectations*
14. *PCG – 1 Step Forward, 2 Steps Back; Legislation Moves Along as Cal Fire Begins the Blame Game on PG&E – Precursor for More Damaging Results to Come?*
15. *NEE / SO: Great Minds Think Alike – This Deal Makes a Lot of Sense For Everyone, with Room for More*
16. *FE – "Can't Always Get What You Want, Get What You Need": Above Avg. Growth, Deep Discount Generating Vast Interest*
17. *D – Southern Charming on Madison Avenue…Any Bargain Shoppers?*
18. *ALE Management Roadshow – Solid Growth; Pieces Are Fitting Together – No…Not a Willing Seller*
19. PEG - Jersey Strong - Quick Takeaways from Meetings with NJ Regulators and PEG Sr. Mgmt.
20. *CNP/VVC – Paying the Price Above the "Premium" Watermark We Expected But w/Marginal Accretion and Large Equity Slug*
21. *PNW NDR – Grid Mod., Tech & the Utility 2.0; Awaiting Visibility into AZ Renewable Proposals for Inflection Point*
22. *VST: Introducing Estimates for the Combined Company: A "Prospective" View Bookended by Dividends; Raising PT to $37*
23. *ETR Mgmt. Roadshow – This Story Is Coming Together Fast; Don't Blink or You Might Miss the Make-Over*
24. *WEC NDR – The "Milwaukee Buck" Stops Here on M&A; Incremental Upside and Organic Profile Keeps Ball in WI's Court*
25. *NRG – Surprisingly Un-Surprising Analyst Day Tells a Stable Retail Story; but Still the Same Old Dividend*
26. *DTE NDR: Motor City's Best Spring Training in NY. Focused on Core Fundamentals; Midstream Could Be a "Home Run"*
27. *CMS Mgmt. Roadshow-ROEs Going Down or Staying "Yooper" (UP) in Michigan? We May be at an Inflection Point*
28. *SRE– "You Mess w/ the Bull, You Get the Horns"; You Mess w/ Texas You Get Oncor, 3% Accretion, and Upside Potential*
29. *VVC Mgmt. Roadshow - Remains Guarded Around M&A, Although Left a "Premuim" Watermark with Their Standalone Plan*
30. *EIX – Quick Take: Upgrading to BUY on Comfort w/ Dividend, Valuation; Limited Downside, Upside as Investors Step In*
31. *AEP – Upgrading to NEUTRAL on Balancing Risks – Wind Catcher a Nice Have but Now Pure Upside*
32. *ES – NH SEC Denies NPT Application – Stay-tuned for Next Steps*

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

33. *D/SCG – Heads-up. SC Policy-makers Start Encroaching on Transaction Economics, and D's Contractual Ripcords*
34. *VST – Mgmt NDR: In Search of an Industry; Oh Hello, Yield Investors! Raising PT w/Room for Dividend, Synergy Upside*
35. *EIX Mgmt Roadshow: Fighting on All Fronts, but Not Much to Report from the Front Line, or in Defense of Dividends*
36. *D – A Nuclear Resolution by Way of M&A: Part One*
37. *SCG – Upgrading to NEUTRAL – Balancing Risk/Reward: Tough Short with Wind Blowing in SC; Is SCG the Special Sauce?*
38. *NI – Management Roadshow: 20/20 Vision – Open your Eyes to See the Runway Through the Event Horizon*
39. *PCG – Shares Continue to Slide as Insurance Isn't Much of a Safety Net; Tough to Call a Bottom without a Safety Net*
40. *SO – Upgrading to BUY – Shaking off the Hangover with Some Hair of the Dog; Raising Price Target*
41. *SCG – No Change in Stance; No Easy Way Out – Can Stakeholders Reach the Same Conclusion or Other Forces at Play?*
42. *EXC - Illinois Judge Rules in Favor of EXC in ZECs Case, Direct Read-Through to NY*
43. *EXC - Stood In Line but NY State of Mind Didn't Keep Us Waiting Too Long: Rules In Favor of ZECs*
44. *SR – Mgmt. Roadshow: All About Clearing Up Misconceptions; Time to Put M&A Bias to Bed and Move Past MO Discount*
45. *NEE – Analyst Day Reinforces Growth, Likely Even Higher, But Whose Counting At This Point*
46. *DUK Mgmt. Roadshow: Refreshing Message—Rate Cases, Legislation, Coal/Gas Conversion and Infrastructure Should Bear Fruit*
47. *EXC - Mgmt Roadshow: Please Don't Let Me Be Misunderstood – Message Was Loud and Clear*

---

*This message and any attachment are confidential and may be privileged or otherwise protected from disclosure. If you are not the intended recipient, please telephone or email the sender and delete this message and any attachment from your system. If you are not the intended recipient you must not copy this message or attachment or disclose the contents to any other person.*

*Click here to unsubscribe.*



AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** Jaworowski, Suzanne
**To:** Travis Fisher; Abbey, Tristan C. EOP/NSC; Maddox, Mark; Simmons, Daniel
**Subject:** Transition Team Reunion Lunch

---

Share invite with others as you like.

AMERICAN OVERSIGHT

REDACTIONS WERE MADE PURSUANT TO EXEMPTIONS 5 AND 6

**From:** David Ortiz
**To:** Anna Cochrane; Jette Gebhart; Jignasa Gadani; Joseph McClelland; David Andrejcak; Travis Fisher; [redacted] Martin Kirkwood; [redacted]; Cynthia Pointer; Kal Ayoub
**Cc:** Christy Walsh; Caroline Wozniak; Steve Rodgers; Becky Robinson; [redacted]
**Subject:** WECC and Wood MacKenzie Briefing on Western Gas Integration Study
**Attachments:** WECC -- Gas BES Study_FERC_Workshop Final .pptx

---

Hi, I've setup a few phone lines for those unable to make it into the office who would like to dial in.

Dial in from your phone:
From an Internal phone 6888
From within local Wash, DC area 202-502-6888
From outside Local Wash, DC area 1-877-857-1347

Meeting ID: [redacted]

Briefing attached.

Attending from WECC: Steve Goodwill (GC), Melanie Frye (CEO), Tammy Austin, 3 representatives from WoodMac

AMERICAN OVERSIGHT

**Department of Energy**
**Washington, DC 20585**

Sam Gomberg
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

MAY 17 2019

Via email to: sgomberg@ucsusa.org

Re: HQ-2018-01436-F

Dear Mr. Gomberg:

This is a second partial response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> All emails, email attachments, or calendar invitations/entries sent or received by the following people:
>
> a. Brian McCormack
> b. Mark Menezes
> c. Steve Winberg
> d. Mark Maddox
> e. Sean Plasynski
> f. Bruce Walker
> g. Edward McGinnis
> h. Theodore Garrish
> i. Martin Dannenfelser
> j. Jennifer Loraine
> k. Daniel Simmons
> l. Sean Cunningham
> m. Shaylyn Hynes
>
> Provide records from May 30, 2018 to June 5, 2018.

In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."

AMERICAN OVERSIGHT

Your request was assigned to DOE's Office of the Executive Secretariat (ES); the Office of Fossil Energy (FE); the Office of Congressional and Intergovernmental Affairs (CI); the Office of Public Affairs (PA); the Office of Electricity (OE); the Office of Nuclear Energy (NE); the Office of International Affairs (IA); the Office of Management (MA); the Office of Environmental Management (EM); and the National Energy Technology Laboratory (NETL) to conduct a search of their files for responsive documents.

DOE started its search on August 8, 2018, which is the cut-off date for responsive documents. You received a first partial response on March 18, 2019 consisting of twenty-three (23) documents. This letter serves as a second partial response for DOE. DOE is continuing to process your request for additional responsive documents, which will be provided to you in subsequent responses.

At this time, DOE has located fifty-two (52) documents responsive to your request. Upon review, DOE has determined that certain information should be withheld pursuant to Exemptions 5 and 6 of the FOIA, 5 U.S.C. § 552(b)(5) and (b)(6).

Exemption 5 protects "inter-agency or intra-agency memorandums or letters that would not be available by law to a party other than an agency in litigation with the agency." 5 U.S.C. § 552(b)(5). This exemption has been construed to exempt those documents normally privileged in the civil discovery context, such as attorney-client communications, attorney-work product documents, and deliberative process material.

The information withheld under Exemption 5 has been deemed pre-decisional and deliberative in nature, including pre-decisional discussions between DOE staff. The DOE may consider these preliminary views as part of the process that will lead to the agency's final decision about these matters. The information does not represent a final agency position, and its release would compromise the deliberative process by which the government makes its decisions. Withholding this information protects against the premature disclosure of proposed policies regarding personnel matters, protects the candor of intra-agency communications, and prevents confusion to the public that could result from disclosing alternative rationales for agency decisions.

With respect to the discretionary disclosure of deliberative information, the quality of agency decisions would be adversely affected if frank, written discussion of policy matters were inhibited by the knowledge that the content of such discussion might be made public. For this reason, DOE has determined that discretionary disclosure of the deliberative material is not in the public interest because foreseeable harm could result from such disclosure.

In addition, these documents contain communications involving DOE attorneys and are being withheld under the attorney work-product and attorney client privileges. The information in these documents includes deliberations of litigation strategy and information prepared by attorneys in anticipation of litigation. Further, several documents contain confidential communications between DOE attorneys and the staff of the program office to which they provide legal advice.

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files



AMERICAN OVERSIGHT

the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5 U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of personal information, cell numbers, teleconference numbers and passcodes. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that when a FOIA request is denied, agencies will be defended and justified in not releasing the material on a discretionary basis "if (1) the agency reasonably foresees that disclosure will harm an interest protected by one of the statutory exemptions, or (2) disclosure is prohibited by law." The Attorney General's memorandum also provides that whenever full disclosure of a record is not possible, agencies "must consider whether they can make a partial disclosure." Thus, we have determined that, in certain instances, a partial disclosure is proper. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, a redacted version of the document is being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.



AMERICAN OVERSIGHT

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 16, 2018, letter, you were advised that your request was placed in the "scientific" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

DOE is continuing to process your request. If you have questions about the processing of the request or this letter, please contact Ms. Ayana Crawford in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at Ayana.Crawford@hq.doe.gov.

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01436-F**

**Second Partial response to request from Mr. Sam Gomberg for:**

> **All emails, email attachments, or calendar invitations/entries sent or received by the following people:**
>
> **a. Brian McCormack**
> **b. Mark Menezes**
> **c. Steve Winberg**
> **d. Mark Maddox**
> **e. Sean Plasynski**
> **f. Bruce Walker**
> **g. Edward McGinnis**
> **h. Theodore Garrish**
> **i. Martin Dannenfelser**
> **j. Jennifer Loraine**
> **k. Daniel Simmons**
> **l. Sean Cunningham**
> **m. Shaylyn Hynes**
>
> **Provide records from May 30, 2018 to June 5, 2018.**

**In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."**

DOE conducted a search of its files, and at this time, has identified fifty-two (52) documents responsive to your request.

- Twenty-four (24) documents *are being released in full.*
- Twenty-eight (28) documents *are being released in part pursuant to Exemptions 5 and/or 6.*



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, May 29, 2018 6:51 PM
**To:** Powell, John
**Subject:** RE: Speaking engagement

Ok either way,(b) (6)

---

**From:** Powell, John <John.Powell@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 9:01 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** RE: Speaking engagement

I do not think it will take much time and is actually a development opportunity for Kelly.

I'll make sure Kelly is coming back to DOE ASAP.

Kelly is actually on the NE time tomorrow but with NE mostly not here we will get more Kelly time than normal this week.

If okay with you I think it would be good to have Kelly give the talk

Thoughts

John

---

**From:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 8:37 PM
**To:** Powell, John <John.Powell@hq.doe.gov>
**Subject:** Speaking engagement

John, if you don't think it is the best use of Kelly's time we can just tell NE she's not available regardless of whether there is a replacement. I'm going to need help anyway.
Sean



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 4:33 AM
**To:** Yunaska, Kyle
**Subject:** FW: LPO-Proposed Legislation

Please check and respond thanks

-----Original Message-----
From: Bolton, Dwayne S.
Sent: Tuesday, May 29, 2018 3:47 PM
To: Kohl, Elizabeth <Elizabeth.Kohl@hq.doe.gov>; Dannenfelser, Marty <Marty.Dannenfelser@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Ro, Tina <Tina.Ro@Hq.Doe.Gov>; Chaudhari, Preeti <Preeti.Chaudhari@hq.doe.gov>; Goshe, Catherine <Catherine.Goshe@hq.doe.gov>; Tiedeman, Jennifer <Jennifer.Tiedeman@Hq.Doe.Gov>; Cohen, Daniel <Daniel.Cohen@hq.doe.gov>
Subject: RE: LPO-Proposed Legislation

Good afternoon,

Marty is checking.

Dwayne

Dwayne S. Bolton
Deputy Assistant Secretary-House Affairs
Office of Congressional and Intergovernmental Affairs
U.S. Department of Energy
1000 Independence Ave., SW
Washington, D.C. 20585
(202)586-8590 (Office)
(b) (6) (Mobile)

-----Original Message-----
From: Kohl, Elizabeth
Sent: Tuesday, May 29, 2018 1:41 PM
To: Dannenfelser, Marty <Marty.Dannenfelser@hq.doe.gov>; Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Ro, Tina <Tina.Ro@Hq.Doe.Gov>; Chaudhari, Preeti <Preeti.Chaudhari@hq.doe.gov>; Goshe, Catherine <Catherine.Goshe@hq.doe.gov>; Tiedeman, Jennifer <Jennifer.Tiedeman@Hq.Doe.Gov>; Cohen, Daniel <Daniel.Cohen@hq.doe.gov>
Subject: FW: LPO-Proposed Legislation

Good afternoon, all -- (b) (5)

Betsy Kohl



AMERICAN OVERSIGHT

Office of the General Counsel
U.S. Department of Energy
202-586-7796

This electronic message transmission contains information which may be confidential or privileged. The information is intended to be for the use of the individual or entity named above. If you have received this electronic transmission in error, please notify the sender immediately.

-----Original Message-----
From: Glaser, Herbert
Sent: Tuesday, May 29, 2018 9:41 AM
To: Kohl, Elizabeth <Elizabeth.Kohl@hq.doe.gov>; Cestari, Kenneth <Kenneth.Cestari@hq.doe.gov>; Cohen, Daniel <Daniel.Cohen@hq.doe.gov>
Cc: Lachenmayr, Andrea <Andrea.Lachenmayr@Hq.Doe.Gov>; Donovan, Nancy <Nancy.Donovan@Hq.Doe.Gov>; Tiedeman, Jennifer <Jennifer.Tiedeman@Hq.Doe.Gov>
Subject: RE: LPO-Proposed Legislation

Hi, Betsy. (b) (5)
(b) (5)

Best, Herb

Herbert A. Glaser
Loan Programs Office
DEPARTMENT OF ENERGY
202.586.4852

-----Original Message-----
From: Kohl, Elizabeth
Sent: Tuesday, May 29, 2018 9:29 AM
To: Cestari, Kenneth <Kenneth.Cestari@hq.doe.gov>; Cohen, Daniel <Daniel.Cohen@hq.doe.gov>
Cc: Glaser, Herbert <Herbert.Glaser@hq.doe.gov>; Lachenmayr, Andrea <Andrea.Lachenmayr@Hq.Doe.Gov>; Donovan, Nancy <Nancy.Donovan@Hq.Doe.Gov>; Tiedeman, Jennifer <Jennifer.Tiedeman@Hq.Doe.Gov>
Subject: RE: LPO-Proposed Legislation

Hi Ken --

Thank you for sending. We'll aim to get you any edits by the end of next week if that works for you. Thank you,

Betsy

Betsy Kohl
Office of the General Counsel
U.S. Department of Energy



AMERICAN OVERSIGHT

202-586-7796

This electronic message transmission contains information which may be confidential or privileged. The information is intended to be for the use of the individual or entity named above. If you have received this electronic transmission in error, please notify the sender immediately.

-----Original Message-----
From: Cestari, Kenneth
Sent: Friday, May 25, 2018 12:47 PM
To: Cohen, Daniel <Daniel.Cohen@hq.doe.gov>; Kohl, Elizabeth <Elizabeth.Kohl@hq.doe.gov>
Cc: Cestari, Kenneth <Kenneth.Cestari@hq.doe.gov>; Glaser, Herbert <Herbert.Glaser@hq.doe.gov>; Lachenmayr, Andrea <Andrea.Lachenmayr@Hq.Doe.Gov>; Donovan, Nancy <Nancy.Donovan@Hq.Doe.Gov>
Subject: LPO-Proposed Legislation

Dan and Betsy:

(b) (5)

Many thanks and enjoy the Memorial Day weekend,

Ken



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 6:10 AM
**To:** Balash, Peter C.;Maddox, Mark
**Cc:** Winberg, Steven
**Subject:** RE: iNTRODUCTION

Pre-Decisional

Peter,
Following up on our phone conversation, as we continue to examine the landscape of generation retirements of various types, I would be most grateful if you could send me at this point just the list of announced retirements (as of yesterday if possible) of coal and nuclear units nationwide with the following columns of information in this order:

1. Unit ISO/RTO name (if it is in an ISO or RTO)
2. Unit NERC region
3. Plant state
4. Plant city
5. Primary Fuel Category
6. Primary Fuel Code
7. Plant name
8. Unit #
9. Plant Operator Name
10. Holding company (I recognize that there may be more than one Holding company for a given unit)
11. Regulated/nonregulated
12. Nameplate capacity
13. Net summer capacity
14. Net winter capacity
15. Proposed retirement date
16. Cogen: Y/N
17. Source of retirement date (e.g., EIA, press release, whatever the choices are)

Please array the rows by region in the following order:
CAISO
MISO
PJM
NYISO
NEISO
SPP
WECC
SERC
FRCC

Within each region, please put units in alphabetical order by State, and within each state, alphabetical by Plant name, and within each Plant, in unit numerical order.

Also, one question: (b) (5) but it doesn't seem to be on the (b) (5) -- Could you please check on that?



AMERICAN OVERSIGHT

Many thanks,

Sean Cunningham

-----Original Message-----
From: Cunningham, Sean
Sent: Wednesday, May 30, 2018 7:35 AM
To: 'Balash, Peter C.' <Peter.Balash@NETL.DOE.GOV>; Maddox, Mark <MRMaddox@hq.doe.gov>
Cc: Winberg, Steven <Steven.Winberg@hq.doe.gov>
Subject: RE: INTRODUCTION

Thanks, Peter. Could we talk on the phone later this morning? I am at 202 586 8436
Sean

-----Original Message-----
From: Balash, Peter C. [mailto:Peter.Balash@NETL.DOE.GOV]
Sent: Tuesday, May 29, 2018 2:44 PM
To: Maddox, Mark <MRMaddox@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Winberg, Steven <Steven.Winberg@hq.doe.gov>
Subject: RE: INTRODUCTION

Mark and Sean,

My pleasure. Be happy to help!

Peter

-----Original Message-----
From: Maddox, Mark [mailto:MRMaddox@hq.doe.gov]
Sent: Tuesday, May 29, 2018 2:16 PM
To: Balash, Peter C. <Peter.Balash@NETL.DOE.GOV>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Winberg, Steven <Steven.Winberg@hq.doe.gov>
Subject: INTRODUCTION

Peter and Sean,

I wanted to introduce you to each other. Peter, Sean is the Director of the Office of Policy. (b) (5)
(b) (5) If you could give him your full attention, Steve and I would be greatly appreciative.

Best,

Mark R. Maddox
Principal Deputy Assistant Secretary
Office of Fossil Energy
U.S. Department of Energy
Ph: 202.586.1619
Email: mrmaddox@hq.doe.gov
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 6:16 AM
**To:** Menezes, Mark;Fibbe, George;McCormack, Brian
**Subject:** RE: 2018 Summer Reliability Assessment

Will review now, thanks

**From:** Menezes, Mark
**Sent:** Wednesday, May 30, 2018 8:26 AM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: 2018 Summer Reliability Assessment

To be released today. Note summary.

Mark W. Menezes
Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
Tel: (202) 586-8808

**From:** Gabriel, Mark [mailto:Gabriel@WAPA.GOV]
**Sent:** Wednesday, May 30, 2018 8:04 AM
**To:** Menezes, Mark <Mark.Menezes@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
**Subject:** 2018 Summer Reliability Assessment

I am not sure if you receive this but it is being released this morning.

My read: (b) (5)

Mark A. Gabriel
Administrator and Chief Executive Officer
Western Area Power Administration
(720) 962-7705 Office
(b) (6) Cell
Gabriel@wapa.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 6:44 AM
**To:** Menezes, Mark
**Cc:** Varnasidis, Sophia
**Subject:** economics
**Attachments:** Brattle_nuclear_closure_impacts_-_oh_pa_-_apr2018.pdf; IHS Markit April 2018--Ensuring_resilient_and_efficient_PJM_electricity_supply_The_value_of_cost-effective_nuclear_resources_in_PJM.pdf; IHS Markit -- Value of the Current Diverse US Power Supply Portfolio (Sept 2017).pdf

Pre-Decisional

Attached FYI/FYSA are the studies we cite in the addendum. Relevant to economic analysis.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 7:35 AM
**To:** Smith, Wayne D;Colgary, James;Garrish, Theodore;Burnison, Melissa;Everett, Max;Binkley, Steve;Turenne, William
**Subject:** RE: ****WHITE HOUSE TASKING****

(b) (5)

---

**From:** Smith, Wayne D
**Sent:** Tuesday, May 29, 2018 5:26 PM
**To:** Colgary, James <James.Colgary@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Burnison, Melissa <Melissa.Burnison@hq.doe.gov>; Everett, Max <Max.Everett@hq.doe.gov>; Binkley, Steve <john.binkley@science.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** ****WHITE HOUSE TASKING****
**Importance:** High

Good evening. Please provide any comments or clear by COB tomorrow, Wednesday, 30 May. Thank you.

V/r,
Wayne

---

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Tuesday, May 29, 2018 2:02 PM
**To:** HookBH@state.gov; DonnellKL@state.gov; FrideresTF@state.gov; BrownCS@state.gov; Kenna, Lisa EOP <kennald@state.gov>; LoGerfoGD@state.gov; stm77@treasury.gov; Ryan.Brady@treasury.gov; Mohler, Hallock CAPT SD <Hallock.Mohler@sd.mil>; Matthew.Whitaker@usdoj.gov; Demi.Yeager@usdoj.gov; awilliams2@doc.gov; WTeramoto@doc.gov; ruth.knouse@dot.gov; geoff.burr@dot.gov; tom.cremins-1@nasa.gov; susanmb3@dni.gov; Scott_Hommel@ios.doi.gov; juliette_lillie@ios.doi.gov; Heidi.green@osec.usda.gov; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Smith, Wayne D <Wayne.Smith@hq.doe.gov>; christina.bobb@hq.dhs.gov; chad.wolf@hq.dhs.gov
**Cc:** Staff Secretary (b) (6) dredl@ntia.doc.gov; patkins@ntia.doc.gov; dkhlopin@ntia.doc.gov; Rachael.bender@fcc.gov; Donald.stockdale@fcc.gov
**Subject:** FOR REVIEW: (b) (5)

(b) (5)

(b) (5)

Please send comments to Staff Sec by **10 AM Thursday, May 31**.

Thank you,



AMERICAN OVERSIGHT

Staff Sec



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 9:07 AM
**To:** Yunaska, Kyle
**Subject:** FW: Meeting Invitation - May 31st

FYSA. Not taking this.

---

**From:** Harris, Aleisha (CONTR)
**Sent:** Wednesday, May 30, 2018 11:50 AM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** FW: Meeting Invitation - May 31st

Good Morning,

Per my meeting with Mr. Walker, he believes that the below meeting should be with you and your office. Please see the email chain below.

Thanks,
Aleisha

---

**From:** Lotto, Adrienne
**Sent:** Wednesday, May 23, 2018 3:00 PM
**To:** Harris, Aleisha (CONTR) <Aleisha.Harris@hq.doe.gov>; Coe, Michael (CONTR) <Michael.Coe@hq.doe.gov>
**Subject:** FW: Meeting Invitation - May 31st

*Adrienne Lotto*

Chief of Staff for Office of Electricity (OE) and
Cybersecurity, Energy Security and Emergency Response (CESER)
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Walker, Bruce
**Sent:** Wednesday, May 23, 2018 1:38 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** FW: Meeting Invitation - May 31st

---

**From:** Adina Greenidge
**Sent:** Wednesday, May 23, 2018 1:35:11 PM (UTC-05:00) Eastern Time (US & Canada)
**To:** Walker, Bruce
**Subject:** RE: Meeting Invitation - May 31st



AMERICAN OVERSIGHT

Good Morning Mr. Brouilette,

I hope this email finds you well. I am writing to follow up on an invitation I sent last week, with regard to meeting with a few of our investor clients, and to flag that the date has been pushed back to June 18th as the week of May 31st is a holiday week. Our group met with the DOE back in October on a similar topic, with clients including but not limited to:

- Centerbridge
- Avenue Capital
- Oaktree Capital Power
- Energy Capital Partners
- King Street, etc..

If you have availability to meet on **Monday, June 18th**, we would very much appreciate your time and perspective. Again, nothing discussed in this meeting will be for quotation or attribution, it will be just for our clients general knowledge. Please reach out if you have any questions about this meeting request.

Kindly,

Adina Greenidge

CAPSTONE

**Adina Greenidge, Research Coordinator**
Capstone LLC | 1400 Eye St. NW, Suite 1115, Washington, DC
Desk: 202-499-6008 | Mobile: (b) (6)
Email: agreenidge@capstonedc.com | www.capstonedc.com

---

**From:** Adina Greenidge
**Sent:** Thursday, May 10, 2018 11:47 AM
**To:** bruce.walker@hq.doe.gov
**Subject:** Meeting Invitation - May 31st

Good Afternoon Mr. Walker,

I hope you are well. I work for Capstone, a policy analysis firm based in Washington, DC. We advise institutional investors on how government policy impacts the wholesale energy markets. We have been tracking the myriad of market reforms that have been ordered and proposed recently - including those in energy markets, capacity markets as well as tariff changes required for storage integration.

As these reforms have reverberations through the wholesale markets we - along with a group of our investor clients - would greatly appreciate a chance to meet with you to discuss your thoughts on these issues at a high level. Because we work for investors, we are only seeking information in the public domain as we have strict compliance protocols.

We are hoping that you might be amenable to meet with us on or around **May 31st**. We are happy to send you a sample list of questions as well as a list of likely investor attendees if that would be useful to you.

Please let me know which days around May 31st would be most convenient for your office.

Best,



AMERICAN OVERSIGHT

CAPSTONE

**Adina Greenidge, Research Coordinator**
Capstone LLC | 1400 Eye St. NW, Suite 1115, Washington, DC
Desk: 202-499-6008 | Mobile: (b) (6)
Email: agreenidge@capstonedc.com | www.capstonedc.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 1:29 PM
**To:** Garrish, Theodore
**Subject:** RE: PJM Auction results in loss of 7500 MWe nuclear capacity

Thanks, Ted.

**From:** Garrish, Theodore
**Sent:** Wednesday, May 30, 2018 4:15 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Cc:** Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Subject:** PJM Auction results in loss of 7500 MWe nuclear capacity

ICYMI

I thought you find it interesting that in the recent PJM capacity auction, ¼ of the nuclear capacity didn't make it. This could be a factoid you could use.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Wednesday, May 30, 2018 4:28 PM
**To:** Konieczny, Katherine
**Cc:** Fibbe, George
**Subject:** RE: conditions

PRIVILEGED AND CONFIDENTIAL

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

Sean

-----Original Message-----
From: Konieczny, Katherine
Sent: Wednesday, May 30, 2018 5:23 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Fibbe, George <George.Fibbe@hq.doe.gov>
Subject: RE: conditions

PRIVILEGED CONFIDENTIAL
(b) (5)

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, May 29, 2018 1:35 PM
To: Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
Cc: Fibbe, George <George.Fibbe@hq.doe.gov>
Subject: conditions

PRIVILEGED AND CONFIDENTIAL

Kathy,

(b) (5)

Sean



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Thursday, May 31, 2018 5:20 AM
**To:** Varnasidis, Sophia

Good morning,
I'm not going to be able to join the 830 meeting.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Thursday, May 31, 2018 7:50 AM
**To:** Lotto, Adrienne;Walker, Bruce
**Subject:** RE: Cyber assessment

Thanks

**From:** Lotto, Adrienne
**Sent:** Thursday, May 31, 2018 10:48 AM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>
**Subject:** RE: Cyber assessment

Yes. Made public yesterday per WH EO 13800. It's a coordinated roll out. Report was drafted over a year ago.

---

**From:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 6:45 AM
**To:** Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** Cyber assessment

Bruce and Adrienne,
This EE article references an Assessment of cyber incident response capabilities. The document is dated August 9, 2017. The article says it is a "White House" report. Is it from DOE? Was it only recently made public? Thanks.
https://www.eenews.net/energywire/2018/05/31/stories/1060083057



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Thursday, May 31, 2018 9:38 AM
**To:** Powell, John
**Subject:** RE: FYI

Thanks, he also just called. I'm out today.

**From:** Powell, John
**Sent:** Thursday, May 31, 2018 12:26 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** FYI

S-3 just knocked on your door looking for you.

Do not know the subject.

John Powell
Director, Liquid Fuels, Transportation, and Energy Security Analysis, Office of Policy
U.S. Department of Energy
1000 Independence Ave, SW
Washington, DC 20585
202-586-1814 Mobile: (b) (6)
John.powell@hq.doe.gov
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Thursday, May 31, 2018 9:43 AM
**To:** Menezes, Mark
**Subject:** NETL 2015 study
**Attachments:** NETL Coal Fleet Transition Eastern Interconnection Study (Feb 22, 2015).pdf

As promised.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Thursday, May 31, 2018 1:08 PM
**To:** Menezes, Mark;Fibbe, George
**Subject:** Unit list and summary
**Attachments:** UNITS INTERNAL DRAFT (5-31-2018 1600 -- for S3).docx; SUMMARY TABLE -- unit retirements by region (REV 5-31-2018 1530 -- for S3).docx

PRIVILEGED AND CONFIDENTIAL

Mark and George,

(b) (5)

Sean



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Thursday, May 31, 2018 5:45 PM
**To:** Brouillette, Dan
**Cc:** Menezes, Mark
**Subject:** FW: *Privileged & Confidential* (b) (5)

Pre-Decisional
FYSA

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 8:41 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: *Privileged & Confidential* (b) (5)

*priveleged and confidential *

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 2:34 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

Privileged and Confidential

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240



AMERICAN OVERSIGHT

Cell: (b) (6)

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, May 29, 2018 3:15 PM
To: Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

(b) (5)

-----Original Message-----
From: Hynes, Shaylyn
Sent: Tuesday, May 29, 2018 2:57 PM
To: Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: *Privileged & Confidential* PROPOSED STATEMENT FOR WH
Importance: High

*Privileged and Confidential* Pre-Decisional* Not for Distribution*

All,

(b) (5)

Thank you,
Shaylyn



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 5:23 AM
**To:** Brouillette, Dan
**Subject:** FW: Agenda for today's CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)
**Attachments:** 05-31-2018-0501 CISR PCC on Strategic Electric Generation Reserve _Agend....pdf

Pre-decisional
Deliberative process privilege

FYSA

---

**From:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:08 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** Agenda for today's CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

See attached. Has been shared with S3/George

---

**From:** Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Date:** Friday, Jun 01, 2018, 7:31 AM
**To:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>
**Cc:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Kumar, Puesh <Puesh.Kumar@hq.doe.gov>
**Subject:** FW: CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

Please see below.

---

**From:** Kumar, Puesh <Puesh.Kumar@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 6:29 AM
**To:** Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>, Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
**Subject:** FW: CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

Hi Devon and Pat, Please see attached for the CISR PCC agenda that was sent late last night, in case you'd like to pass along to S3 and Mr. Fibbe.

--



AMERICAN OVERSIGHT

Puesh M. Kumar
Director, Infrastructure Security and Energy Restoration
U.S. Department of Energy
Cell: (b) (6)
Email: Puesh.Kumar@hq.doe.gov

Sent while mobile.

---

**From:** Turner, Maryanne EOP/NSC (b) (6)
**Date:** Thursday, May 31, 2018, 11:20 PM
**To:** Turner, Maryanne EOP/NSC (b) (6)
**Subject:** CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

CISR PCC Members,

Please find attached the agenda for Friday's CISR PCC. Please note the room has changed to Rm. 374 SMS Large in the EEOB.

Thank you.

Maryanne Turner
Special Assistant, Resilience Policy Directorate
National Security Council
EEOB Rm. 425



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 5:24 AM
**To:** Varnasidis, Sophia
**Subject:** RE: Agenda for today's CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

Thanks

---

**From:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:21 AM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** RE: Agenda for today's CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

No. This is the run through of S1's schedule.

---

**From:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:21 AM
**To:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: Agenda for today's CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

Am I needed for the Manhattan meeting in progress?

---

**From:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:08 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienue.Lotto@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** Agenda for today's CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

See attached. Has been shared with S3/George

---

**From:** Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Date:** Friday, Jun 01, 2018, 7:31 AM
**To:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>
**Cc:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Kumar, Puesh <Puesh.Kumar@hq.doe.gov>
**Subject:** FW: CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

Please see below.



AMERICAN OVERSIGHT

**From:** Kumar, Puesh <Puesh.Kumar@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 6:29 AM
**To:** Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>, Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
**Subject:** FW: CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

Hi Devon and Pat, Please see attached for the CISR PCC agenda that was sent late last night, in case you'd like to pass along to S3 and Mr. Fibbe.

--
Puesh M. Kumar
Director, Infrastructure Security and Energy Restoration
U.S. Department of Energy
Cell: (b) (6)
Email: Puesh.Kumar@hq.doe.gov

Sent while mobile.

---

**From:** Turner, Maryanne EOP/NSC (b) (6)
**Date:** Thursday, May 31, 2018, 11:20 PM
**To:** Turner, Maryanne EOP/NSC (b) (6)
**Subject:** CISR PCC, Friday June 1, 2018, 10:00 am - 11:30 am, ROOM CHANGE: NOW Rm. 374 SMS Large conference room (Agenda attached)

CISR PCC Members,

Please find attached the agenda for Friday's CISR PCC. Please note the room has changed to Rm. 374 SMS Large in the EEOB.

Thank you.

Maryanne Turner
Special Assistant, Resilience Policy Directorate
National Security Council
EEOB Rm. 425



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 6:48 AM
**To:** Hynes, Shaylyn
**Subject:** RE: *Flash* Talking Points for review

Looks good to me.

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 8:30 AM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** *Flash* Talking Points for review
**Importance:** High

*Priveleged and Confidential*

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 2:34 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>,



AMERICAN OVERSIGHT

Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

Privileged and Confidential

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, May 29, 2018 3:15 PM
To: Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

(b) (5)

-----Original Message-----
From: Hynes, Shaylyn
Sent: Tuesday, May 29, 2018 2:57 PM
To: Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: *Privileged & Confidential* PROPOSED STATEMENT FOR WH
Importance: High

*Privileged and Confidential* Pre-Decisional* Not for Distribution*

All,

(b) (5)

Thank you,
Shaylyn



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 7:30 AM
**To:** Cade, Steven
**Subject:** RE: Nat Gas recent usage trends
**Attachments:** NERC Special Assessment Natural Gas Nov 2017.pdf

Thanks, Steve.

See p. 2-3 of the attached. Also:

https://www.eia.gov/todayinenergy/detail.php?id=29732

https://www.eia.gov/todayinenergy/detail.php?id=34612

https://www.eia.gov/todayinenergy/detail.php?id=33543

I would not focus on capacity factor; that is something different.

-----Original Message-----
From: Cade, Steven
Sent: Friday, June 01, 2018 9:54 AM
To: Menezes, Mark <Mark.Menezes@hq.doe.gov>
Cc: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Subject: Nat Gas recent usage trends
Importance: High

Sir,

Quick find from EIA dated 18 Dec, 2017: https://www.eia.gov/todayinenergy/detail.php?id=34172

The average capacity factor, a metric that measures the utilization of power plants, for natural gas combined-cycle units has increased from 43% in 2011 to 56% in 2016. The upward trends in both natural gas net generation and the natural gas-fired combined-cycle annual capacity factor (which is approaching 60%) highlight the growing contribution of natural gas-fired combined-cycle generators, which traditionally only served peaking and intermediate loads, but now have increasingly become more common to meet baseload demands.

In 2016, natural gas-fired generators accounted for 42% of the operating electricity generating capacity in the United States. Natural gas provided 34% of total electricity generation in 2016, surpassing coal to become the leading generation source. The increase in natural gas generation since 2005 is primarily a result of the continued cost-competitiveness of natural gas relative to coal.

Working on ownership.

V/r
Steve

Steven Cade
Senior Advisor



AMERICAN OVERSIGHT

U.S. Department of Energy
(O) 202.586.9371
steven.cade@hq.doe.gov



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

| | |
|---|---|
| **Subject:** | Tag-up: Sean + Carol |
| **Location:** | Sean's Office |
| **Start:** | Wed 6/6/2018 11:00 AM |
| **End:** | Wed 6/6/2018 12:00 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Cunningham, Sean |
| **Required Attendees:** | Battershell, Carol |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 8:29 AM
**To:** Hynes, Shaylyn
**Subject:** FYSA with doc linked

https://www.utilitydive.com/news/trump-administration-preparing-2-year-coal-nuke-bailout/524788/



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 9:36 AM
**To:** Cade, Steven
**Subject:** RE: Boss returned

Thanks

---

**From:** Cade, Steven <Steven.Cade@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 12:21 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** Boss returned

S3 back in building, but in another meeting until 1300ish



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 12:08 PM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** matrix
**Attachments:** DPA and 202 issue matrix v4 (5-9-2018).docx

PRIVILEGED AND CONFIDENTIAL

Attached is the earlier issues matrix. Recommendations may be obsolete, but this addresses a number of the statutory issues. FYI.

Sean



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 12:41 PM
**To:** Konieczny, Katherine
**Subject:** RE: Current versions

Thanks

-----Original Message-----
From: Konieczny, Katherine
Sent: Friday, June 01, 2018 3:40 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Subject: Current versions

PRIVILEGED CONFIDENTIAL

The requested materials are attached.

Katherine (Kathy) Konieczny
Acting Assistant General Counsel for Electricity and Fossil Energy
Forrestal 6D-033
(202) 586-0503
Katherine.Konieczny@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 1:39 PM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** RE: can we all head to Mark's office now to get some info from him?

Yes for me. I think he is available.

-----Original Message-----
From: Fibbe, George
Sent: Friday, June 01, 2018 4:38 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
Subject: can we all head to Mark's office now to get some info from him?

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 4:57 PM
**To:** Menezes, Mark
**Subject:** FW: Tuesday a.m. call re: DOE proposal
**Attachments:** DRAFT ADDENDUM 2018-5-29 background.docx

PRIVILEGED AND CONFIDENTIAL
PRE-DECISIONAL

(b) (5)

---

**From:** Fibbe, George
**Sent:** Friday, June 01, 2018 7:50 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** FW: Tuesday a.m. call re: DOE proposal

(b) (5)

George Fibbe
Deputy General Counsel,
Litigation, Regulation & Enforcement
Office: 202-287-6240
Cell: (b) (6)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 7:32 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Garrish, Theodore <Theodore.Garrish@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** FW: Tuesday a.m. call re: DOE proposal

FYI

George Fibbe
Deputy General Counsel,
Litigation, Regulation & Enforcement
Office: 202-287-6240
Cell: (b) (6)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 7:20 PM
**To:** Whitaker, Henry C. (OLC) <Henry.Whitaker2@usdoj.gov>, Schouten, Schuyler J. EOP/WHO
(b) (6) Haas, Alex (CIV) <Alex.Haas@usdoj.gov>



AMERICAN OVERSIGHT

**Cc:** Eisenberg, John A. EOP/NSC (b) (6) Ellis, Michael J. EOP/WHO
(b) (6) Moran, John S. EOP/WHO (b) (6) Dermody, John F. EOP/NSC
(b) (6)
**Subject:** RE: Tuesday a.m. call re: DOE proposal

Deliberative & Pre-decisional / Attorney Work Product / Privileged

All –

(b) (5)

Best regards,

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

**From:** Whitaker, Henry C. (OLC) [mailto:Henry.Whitaker2@usdoj.gov]
**Sent:** Tuesday, May 29, 2018 10:36 AM
**To:** Schouten, Schuyler J. EOP/WHO (b) (6) Fibbe, George <George.Fibbe@hq.doe.gov>; Haas, Alex (CIV) <Alex.Haas@usdoj.gov>
**Cc:** Eisenberg, John A. EOP/NSC (b) (6) ; Ellis, Michael J. EOP/WHO
(b) (6) ; Moran, John S. EOP/WHO (b) (6) ; Dermody, John F. EOP/NSC
(b) (6)
**Subject:** RE: Tuesday a.m. call re: DOE proposal

Something appears amiss with our conference line. We could use the (b) (6) Pass code: (b) (6)

**From:** Schouten, Schuyler J. EOP/WHO (b) (6)
**Sent:** Thursday, May 24, 2018 6:48 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>; Haas, Alex (CIV) <alhaas@CIV.USDOJ.GOV>; Whitaker, Henry C. (OLC) <hcwhitaker@jmd.usdoj.gov>
**Cc:** Eisenberg, John A. EOP/NSC (b) (6) Ellis, Michael J. EOP/WHO
(b) (6) ; Moran, John S. EOP/WHO (b) (6) ; Dermody, John F. EOP/NSC
(b) (6)
**Subject:** Tuesday a.m. call re: DOE proposal

Deliberative & Pre-decisional / Attorney Work Product / Privileged

Colleagues,
(b) (5)



AMERICAN OVERSIGHT

Thanks,
Schuyler

Schuyler J. Schouten
Special Assistant to the President, Associate Counsel to the President,
and Deputy NSC Legal Adviser
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 5:56 PM
**To:** Fitzgerald, Timothy W. EOP/CEA
**Subject:** RE: list
**Attachments:** (b) (5)

Please find the list attached.

-----Original Message-----
From: Fitzgerald, Timothy W. EOP/CEA [mailto:(b) (6)
Sent: Friday, June 01, 2018 8:37 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Menezes, Mark <Mark.Menezes@hq.doe.gov>; Griffith, P. Wells W. EOP/NSC (b) (6)
Subject: RE: list

Our list is attached.

-----Original Message-----
From: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Sent: Friday, June 1, 2018 8:29 PM
To: Fitzgerald, Timothy W. EOP/CEA (b) (6)
Cc: Menezes, Mark <Mark.Menezes@hq.doe.gov>; Griffith, P. Wells W. EOP/NSC (b) (6)
Subject: list

Pre-Decisional

Dear Mr. Fitzgerald,

I am responding to your earlier messages to Under Secretary Menezes. Please send me your list and your phone number and I will be glad to call you tomorrow or Monday at your convenience. Thank you for your work on this matter.

Best regards,

Sean Cunningham
Director, Office of Policy



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Friday, June 01, 2018 6:50 PM
**To:** Fitzgerald, Timothy W. EOP/CEA
**Subject:** RE: list
**Attachments:** NETL Coal Fleet Transition Eastern Interconnection Study (Feb 22, 2015).pdf

Pre-Decisional
Deliberative Process Privilege

Tim,
(b) (5)

Sean

-----Original Message-----
From: Fitzgerald, Timothy W. EOP/CEA [mailto:(b) (6)
Sent: Friday, June 01, 2018 8:37 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Menezes, Mark <Mark.Menezes@hq.doe.gov>; Griffith, P. Wells W. EOP/NSC (b) (6)
Subject: RE: list

(b) (5)

-----Original Message-----
From: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Sent: Friday, June 1, 2018 8:29 PM
To: Fitzgerald, Timothy W. EOP/CEA (b) (6)
Cc: Menezes, Mark <Mark.Menezes@hq.doe.gov>; Griffith, P. Wells W. EOP/NSC (b) (6)
Subject: list

Pre-Decisional

Dear Mr. Fitzgerald,

(b) (5)

Best regards,

Sean Cunningham
Director, Office of Policy



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Saturday, June 02, 2018 1:16 PM
**To:** Balash, Peter C.
**Cc:** Winberg, Steven;Maddox, Mark;Kokkinos, Angelos;Plasynski, Sean (NETL)
**Subject:** RE: Plant list

PRE-DECISIONAL

Peter,

(b) (5)

Thank you,

Sean

**From:** Balash, Peter C. [mailto:Peter.Balash@NETL.DOE.GOV]
**Sent:** Thursday, May 31, 2018 2:26 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Cc:** Winberg, Steven <Steven.Winberg@hq.doe.gov>; Maddox, Mark <MRMaddox@hq.doe.gov>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Plasynski, Sean (NETL) <sean.plasynski@netl.doe.gov>
**Subject:** Re: Plant list

(b) (5)

---

**From:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Sent:** Thursday, May 31, 2018 2:18 PM
**To:** Balash, Peter C.
**Cc:** Winberg, Steven; Maddox, Mark Nmn; Kokkinos, Angelos; Plasynski, Sean I.
**Subject:** RE: Plant list

PRE-DECISIONAL

Thanks, Peter,
(b) (5)
(b) (5) Did those already retire within the past two months?

Sean



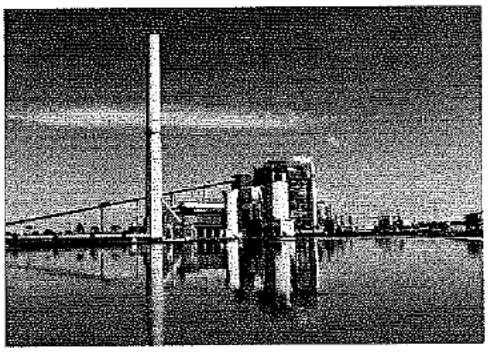
AMERICAN OVERSIGHT

**From:** Balash, Peter C. [mailto:Peter.Balash@NETL.DOE.GOV]
**Sent:** Thursday, May 31, 2018 2:00 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Cc:** Winberg, Steven <Steven.Winberg@hq.doe.gov>; Maddox, Mark <MRMaddox@hq.doe.gov>; Kokkinos, Angelos <Angelos.Kokkinos@hq.doe.gov>; Plasynski, Sean (NETL) <sean.plasynski@netl.doe.gov>
**Subject:** FW: Plant list

Sean,

The ERCOT plants have already been retired:
Sandow 4 & 5: 1/11/2018 ;Big Brown 1 & 2: 2/12/18 Monticello 1,2 & 3: 1/3/18

For the Co Gen
Indiantown was under long-term PPA (1991-2025) with FP&L. It was terminated in late 2016 for $451M through FP&L's purchase of the plant with the intent to close by end of 2018 "in the best interest of FPL's customers" because of the above-market payment rate defined in the PPA.
http://www.sun-sentinel.com/business/consumer/fl-fpl-buys-indiantown-plant-20161003-story.html



FPL purchases Indiantown coal plant for $451 million ...

www.sun-sentinel.com

FPL customers will save $129 million over nine years as the utility's purchase of the Indiantown Congeneration L.P. coal-fired power plant cancels its contract to buy power generated at the plant at outdated prices through 2025.

Sherco closure is a combination of Xcel's purposeful retirement of coal units in pursuit of lower carbon corporate "social responsibility" goals and sustained dark/spark spreads favoring gas.
https://www.mprnews.org/story/2017/02/02/xcel-sherco-coal-plant-replacement-natural-gas
https://www.xcelenergy.com/company/corporate_responsibility_report/2017_highlights

(b) (5)

Best

Peter

**From:** Kern, Kenneth C.
**Sent:** Thursday, May 31, 2018 7:47 AM
**To:** Balash, Peter C. <Peter.Balash@NETL.DOE.GOV>; Nichols, Christopher J. <Christopher.Nichols@NETL.DOE.GOV>;



AMERICAN OVERSIGHT

Brewer, John H. <John.Brewer@NETL.DOE.GOV>; Adder, Justin M. <Justin.Adder@NETL.DOE.GOV>; Gerdes, Kristin J. <Kristin.Gerdes@NETL.DOE.GOV>
**Subject:** RE: Plant list

See slide 56 and 59. (b) (5)

---

**From:** Balash, Peter C.
**Sent:** Wednesday, May 30, 2018 5:21 PM
**To:** Nichols, Christopher J. <Christopher.Nichols@NETL.DOE.GOV>; Brewer, John H. <John.Brewer@NETL.DOE.GOV>; Adder, Justin M. <Justin.Adder@NETL.DOE.GOV>; Kern, Kenneth C. <Ken.Kern@NETL.DOE.GOV>; Gerdes, Kristin J. <Kristin.Gerdes@NETL.DOE.GOV>
**Subject:** Fwd: Plant list

Chris,
(b) (5)

Thanks

Sent from my iPhone

Begin forwarded message:

> **From:** "Balash, Peter C." <Peter.Balash@NETL.DOE.GOV>
> **Date:** May 30, 2018 at 5:05:43 PM EDT
> **To:** "Cunningham, Sean" <Sean.Cunningham@hq.doe.gov>
> **Cc:** "Maddox, Mark Nmn" <mrmaddox@hq.doe.gov>, "Winberg, Steven" <Steven.Winberg@hq.doe.gov>, "Plasynski, Sean I." <Sean.Plasynski@NETL.DOE.GOV>, "Powell, John" <john.powell@hq.doe.gov>, "Yunaska, Kyle" <kyle.yunaska@hq.doe.gov>
> **Subject: Re: Plant list**
>
> Sean,
> (b) (5)
>
> Regards
> Peter
>
> Sent from my iPhone
>
> > On May 30, 2018, at 4:25 PM, Cunningham, Sean <Sean.Cunningham@hq.doe.gov> wrote:
> >
> > PRE-DECISIONAL
> >
> > Peter,



AMERICAN OVERSIGHT

Thanks for the quick turn-around on this. I am reviewing. I have three initial questions:

(b) (5)



AMERICAN OVERSIGHT

EXT-18-2615-K-000046

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

Best,

Sean

-----Original Message-----

From: Balash, Peter C. [mailto:Peter.Balash@NETL.DOE.GOV]

Sent: Wednesday, May 30, 2018 3:01 PM

To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>

Cc: Maddox, Mark <MRMaddox@hq.doe.gov>; Winberg, Steven <Steven.Winberg@hq.doe.gov>; Plasynski, Sean (NETL) <sean.plasynski@netl.doe.gov>

Subject: Plant list

PRE_DECISIONAL

Sean

Please see the attached file; it has announced retirements from ABB/EV from tomorrow to Dec 2025.

Some notes:
(b) (5)



AMERICAN OVERSIGHT

(b) (5)

Peter

-----Original Message-----

From: Cunningham, Sean [mailto:Sean.Cunningham@hq.doe.gov]

Sent: Wednesday, May 30, 2018 9:10 AM

To: Balash, Peter C. <Peter.Balash@NETL.DOE.GOV>; Maddox, Mark Nmn <mrmaddox@hq.doe.gov>

Cc: Winberg, Steven <Steven.Winberg@hq.doe.gov>

Subject: RE: iNTRODUCTiON

Pre-Decisional

Peter,

Following up on our phone conversation, as we continue to examine the landscape of generation retirements of various types, I would be most grateful if you could send me at this point just the list of announced retirements (as of yesterday if possible) of coal and nuclear units nationwide with the following columns of information in this order:

1. Unit ISO/RTO name (if it is in an ISO or RTO) 2. Unit NERC region 3. Plant state 4. Plant city 5. Primary Fuel Category 6. Primary Fuel Code 7. Plant name 8. Unit # 9. Plant Operator Name 10. Holding company (I recognize that there may be more than one Holding company for a given unit) 11. Regulated/nonregulated 12. Nameplate capacity 13. Net summer capacity 14. Net winter capacity 15. Proposed retirement date 16. Cogen: Y/N 17. Source of retirement date (e.g., EIA, press release, whatever the choices are)

Please array the rows by region in the following order:

CAISO

MISO

PJM

NYISO

NEISO

SPP



AMERICAN OVERSIGHT

WECC

SERC

FRCC

Within each region, please put units in alphabetical order by State, and within each state, alphabetical by Plant name, and within each Plant, in unit numerical order.

Also, one question: (b) (5)
(b) (5)
(b) (5) Could you please check on that?

Many thanks,

Sean Cunningham



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Sunday, June 03, 2018 8:05 AM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** OLC
**Attachments:** OLC Questions 6-1-2018 [SBC comments].docx

PRIVILEGED AND CONFIDENTIAL

(b) (5)

-----Original Message-----
From: Fibbe, George
Sent: Sunday, June 03, 2018 10:11 AM
To: Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
Cc: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Subject: Terry

Privileged and Confidential

(b) (5)

Thanks,

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Sunday, June 03, 2018 2:19 PM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** RE: tomorrow

Tentative 10am.

**From:** Fibbe, George
**Sent:** Sunday, June 03, 2018 4:59 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
**Subject:** RE: tomorrow

I have an 830 meeting, and a 12 o'clock meeting, but I could move the 12 o'clock if I needed to.

George Fibbe
Deputy General Counsel,
Litigation, Regulation & Enforcement
Office: 202-287-6240
Cell: (b) (6)

**From:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 3:54 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>, Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
**Subject:** tomorrow

PRIVILEGED AND CONFIDENTIAL

Not finalized yet, but we may have an opportunity to meet with FERC GC tomorrow. He would come to DOE. Assuming 2:30 is taken (Boston), are there times that would not work for you? Prefer morning? Would like to keep this close hold -- who needs to be in this meeting on our side? (Noting we may have limited ability to accommodate schedules).

Sean



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Sunday, June 03, 2018 4:19 PM
**To:** Hynes, Shaylyn
**Subject:** RE: *For S1-Quick Review Needed*

Just needs a proofread. Something missing in the "According to DNI" paragraph. Otherwise clear.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 5:59 PM
**To:** Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Burnison, Melissa <Melissa.Burnison@hq.doe.gov>, Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Everett, Max <Max.Everett@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Subject:** *For S1-Quick Review Needed*

All,

Greetings from Austin, hope everyone had a nice weekend. Please review this updated version of S1's remarks for the DOE Cyber Conference tomorrow morning. They touch on the Department's Cyber efforts, last week's news from the White House and also mention the Cyber report that came out last week.

If you concur, please respond saying so. If you have changes, please track them in the document attached.

We need this as soon as possible.

Thank you!
Shaylyn



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Monday, June 04, 2018 5:36 AM
**To:** Cunningham, Sean
**Subject:** Article s

Per me an
Firbes



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Monday, June 04, 2018 7:25 AM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** price

PRIVILEGED AND CONFIDENTIAL

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Monday, June 04, 2018 1:02 PM
**To:** Yunaska, Kyle
**Subject:** RE: Jess said that Mr. Menezes is expected to make the 9:30am meeting (depending on traffic etc.)

Probably

---

**From:** Yunaska, Kyle
**Sent:** Monday, June 04, 2018 2:03 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** FW: Jess said that Mr. Menezes is expected to make the 9:30am meeting (depending on traffic etc.)

Sean,

Are you going to this meeting tomorrow morning (9:30) in FE? I am not sure if this is a priority.

Discussion with the Association of Oil Pipe Lines (AOPL) about expansion of liquids pipeline capacity to take crude oil and natural gas liquids from the Permian basin in Texas and New Mexico to market.

- Andy Black, AOPL President and CEO
- Steve Kramer, AOPL Senior Vice President and General Counsel
- John Stoody, AOPL Vice President, Government and Public Relations

Apparently S3 is planning on attending but will be giving remarks at the EIA conference an hour before.

---

**From:** Loman, Carol (CONTR)
**Sent:** Monday, June 04, 2018 1:57 PM
**To:** Yunaska, Kyle <Kyle.Yunaska@hq.doe.gov>
**Subject:** Jess said that Mr. Menezes is expected to make the 9:30am meeting (depending on traffic etc.)

Carol Loman
202-586-6660



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | Cunningham, Sean |
| **Sent:** | Monday, June 04, 2018 1:17 PM |
| **To:** | Konieczny, Katherine |
| **Cc:** | Fibbe, George |
| **Subject:** | comments |
| **Attachments:** | DPA Statutory Analysis 2018-6-4 1030am [SBC edits noon 6-4-18].docx |

PRIVILEGED AND CONFIDENTIAL

Kathy, Here's what I have. Was not able to get to the last 3 pages. But that's all I can do for today. Thanks,

Sean



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Monday, June 04, 2018 5:22 PM
**To:** Fibbe, George
**Cc:** Konieczny, Katherine
**Subject:** FW: Follow-Ups from 2nd Meeting
**Attachments:** 20150220172607-ER15-738-000 PJM.pdf; 19990602-CAISO RMR.pdf; 20040212-Cabrillo RMR.pdf

Privileged and Confidential

Please see below and attached.

---

**From:** Hsieh, Eric <Eric.Hsieh@Hq.Doe.Gov>
**Date:** Wednesday, Apr 11, 2018, 4:18 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Cc:** Kennedy, James (FELLOW) <James.Kennedy@hq.doe.gov>
**Subject:** Follow-Ups from 2nd Meeting

Sean,

Attached are three cases related to the origins and current status of RMR:

1999 CAISO – this settlement secured generation capacity during the peak of the California power crisis and included the elements of what is now considered a "standard" RMR contract
2004 Cabrillo – this order, regarding one of the plants in the 1999 CAISO order, is often referenced in subsequent FERC orders; it also contains a concise definition of RMR (footnote 1)
2015 PJM – in the wake of the 2014 Polar Vortex, FERC denied PJM's request for additional RMR flexibility (see footnote 19)

After 430p or so today I can check email periodically.

Eric

---

**From:** Cunningham, Sean
**Sent:** Wednesday, April 11, 2018 3:34 PM
**To:** Hsieh, Eric <Eric.Hsieh@Hq.Doe.Gov>
**Cc:** Kennedy, James (FELLOW) <James.Kennedy@hq.doe.gov>
**Subject:** RE: Follow-Ups from 1st Meeting

Great, thank you

---

**From:** Hsieh, Eric
**Sent:** Wednesday, April 11, 2018 3:21 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>



AMERICAN OVERSIGHT

**Cc:** Kennedy, James (FELLOW) <James.Kennedy@hq.doe.gov>
**Subject:** Follow-Ups from 1st Meeting

Sean,

As requested, here is the info from the first meeting this afternoon.

ZEC Math Explanation (attached) – See slide 93 (et seq) for an example of how NY ZEC prices are calculated

AES Warrior Run Materials
Recent FERC Order:
https://www.ferc.gov/CalendarFiles/20150612165917-ER15-1516-000.pdf

Marketing Presentation:
http://energywv.org/assets/files/Energy-Summit-Presentations/2014/08_Peter_Bajc.pdf

Eric



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Monday, June 04, 2018 5:24 PM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** RE: comments

Privileged and Confidential

I won't be able to do anything with this until tomorrow.

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:25 PM
**To:** Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** RE: comments

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

-----Original Message-----
From: Konieczny, Katherine
Sent: Monday, June 04, 2018 5:22 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Fibbe, George <George.Fibbe@hq.doe.gov>
Subject: RE: comments

PRIVILEGED CONFIDENTIAL

Sean, we discussed edits before I left the office today, but will you be able to turn to the document later tonight? (b) (5)
(b) (5)

-----Original Message-----
From: Cunningham, Sean
Sent: Monday, June 04, 2018 4:17 PM
To: Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
Cc: Fibbe, George <George.Fibbe@hq.doe.gov>
Subject: comments



AMERICAN OVERSIGHT

PRIVILEGED AND CONFIDENTIAL

Kathy, Here's what I have. Was not able to get to the last 3 pages. But that's all I can do for today. Thanks,

Sean



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

| | |
|---|---|
| **Subject:** | Tag-up: Carol + Sean |
| **Location:** | Sean's Office |
| **Start:** | Tue 6/5/2018 7:45 AM |
| **End:** | Tue 6/5/2018 8:15 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Cunningham, Sean |
| **Required Attendees:** | Battershell, Carol |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 8:43 AM
**To:** Battershell, Carol
**Cc:** Camp, Nikki
**Subject:** FW: decision

Carol, Please have this prepared for my signature. Thanks.
Seam

-----Original Message-----
From: Camp, Nikki
Sent: Tuesday, June 05, 2018 11:31 AM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Battershell, Carol <Carol.Battershell@hq.doe.gov>
Subject: RE: decision

Understood and thanks for the update.

Please have this document prepared in final for your signature and date. Once you have signed, dated and issued to the (b) (6) please provide me with a signed/dated copy of the document issued for my records.

Thanks,

Nikki

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, June 05, 2018 10:39 AM
To: Camp, Nikki <Nikki.Camp@hc.doe.gov>
Cc: Battershell, Carol <Carol.Battershell@hq.doe.gov>
Subject: RE: decision

Good morning, Nikki,
I approve of this draft.

Thank you,

Sean

-----Original Message-----
From: Camp, Nikki
Sent: Friday, May 11, 2018 1:10 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Battershell, Carol <Carol.Battershell@hq.doe.gov>; Camp, Nikki <Nikki.Camp@hc.doe.gov>
Subject: RE: decision

Good Morning Sean:



AMERICAN OVERSIGHT

(b) (6)

If you have any questions as you review this DRAFT, please let me know.

Thanks,

Nikki

-----Original Message-----
From: Camp, Nikki
Sent: Thursday, May 10, 2018 1:56 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Battershell, Carol <Carol.Battershell@hq.doe.gov>
Subject: RE: decision

Good Afternoon Sean:

Understood and thanks so much for the update. I will prepare a DRAFT memo for your review. I hope to have it to you NLT COB Tuesday.

Nikki

-----Original Message-----
From: Cunningham, Sean
Sent: Thursday, May 10, 2018 11:31 AM
To: Camp, Nikki <Nikki.Camp@hc.doe.gov>
Cc: Battershell, Carol <Carol.Battershell@hq.doe.gov>
Subject: decision

Nikki,

Sorry for the delay.
(b) (6)

Thanks
Sean



AMERICAN OVERSIGHT

## Rodriguez, Susan (CONTR)

| | |
|---|---|
| **Subject:** | Tag-up: Sean + Carol |
| **Location:** | Sean's Office |
| **Start:** | Wed 6/6/2018 11:30 AM |
| **End:** | Wed 6/6/2018 12:30 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | Cunningham, Sean |
| **Required Attendees:** | Battershell, Carol |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 10:18 AM
**To:** Brouillette, Dan;Menezes, Mark
**Subject:** Mc

FYSA

https://www.washingtonexaminer.com/policy/energy/energy-department-has-the-power-to-save-coal-and-nuclear-plants-ferc-chairman-says

Energy Department has the power to save coal and nuclear plants, FERC chairman says
by Josh Siegel

| June 05, 2018 11:33 AM

Power Facilities As Trump Bailout Of Coal Plant In Gas Country Has Locals Shrugging
The Energy Department is considering requiring regional grid operators to buy power from select coal and nuclear plants for two years, using executive authority under emergency provisions of the Federal Power Act and the Defense Production Act.

(Justin Merriman/Bloomberg)

Energy Secretary Rick Perry has the authority to act to save coal and nuclear plants, Kevin McIntyre, chairman of the Federal Energy Regulatory Commission, said Tuesday. He also conceded his panel of independent energy regulators would not necessarily have a role in approving or implementing an executive order.

"Under the law as it's written and regulations of DOE, there are scenarios that could develop that would not involve a rate proceeding before FERC," McIntyre said at the EIA Energy Conference in Washington, D.C. "We are looking at those details now."

McIntyre was referring to Perry potentially using Section 202(c) of the Federal Power Act. "The fact that it's been invoked rarely, doesn't render it any less valid to me," McIntyre said.

The Energy Department is considering requiring regional grid operators to buy power from select coal and nuclear plants for two years, using executive authority under emergency provisions of the Federal Power Act and the Defense Production Act.

FirstEnergy Solutions, a Ohio utility with coal and nuclear plants facing closure, has asked Perry to use the authority, which the Energy Department can invoke to order certain power facilities to stay open in a crisis.

McIntyre said if the Energy Department were to act using that law, regional grid operators would work with the plants to arrange a payment agreement. If the parties could not reach an agreement, FERC then would get involved to figure out a payment structure.

The FERC chairman also said he could envision Perry using the Defense Production Act. McIntyre had previously said the law is "perhaps not the best fit" to help uneconomic coal and nuclear plants. The Cold War-era law allows the president



AMERICAN OVERSIGHT

to prioritize the federal government's ability to obtain critical, scarce industrial materials in a time of war, ensuring the government can buy the goods before others.

The law also can be used to spur an industry to produce more of a scarce critical resource through a loan guarantee or direct subsidy, effectively nationalizing it.

"It has the feel of a wartime emergency [law] but it then goes on to include more emergency type language that could be invoked to capture this situation," McIntyre said Tuesday. "That is a decision not for me or anybody at FERC but for the secretary of energy."

McIntyre's deference to the Energy Department comes after FERC last year rejected a proposal from Perry to provide special payments to coal and nuclear plants.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 10:50 AM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** RE: Background
**Attachments:** NRG v FERC (2017).pdf; FERC energy-primer.pdf

Privileged and Confidential

(b) (5)

---

**From:** Fibbe, George
**Sent:** Tuesday, June 05, 2018 1:45 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
**Subject:** Background

Privileged and Confidential

(b) (5)

George Fibbe
Deputy General Counsel,
Litigation, Regulation & Enforcement
Office: 202-287-6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 11:02 AM
**To:** Konieczny, Katherine;Fibbe, George
**Subject:** RE: Background

Privileged and Confidential
(b) (5)

---

**From:** Konieczny, Katherine
**Sent:** Tuesday, June 05, 2018 1:51 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** RE: Background

PRIVILEGED CONFIDENTIAL
(b) (5)

---

**From:** Fibbe, George
**Sent:** Tuesday, June 05, 2018 1:45 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
**Subject:** Background

Privileged and Confidential

(b) (5)

George Fibbe
Deputy General Counsel,
Litigation, Regulation & Enforcement
Office: 202-287-6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 11:33 AM
**To:** Battershell, Carol
**Subject:** RE: And just talked to Kyle

Thanks

**From:** Battershell, Carol
**Sent:** Tuesday, June 05, 2018 2:29 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** And just talked to Kyle

**From:** Battershell, Carol
**Sent:** Tuesday, June 05, 2018 2:01 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** I have shared my news with Powell, Hsieh. Shared both our news with Sayles.

Carol Battershell
Principal Deputy Director
Office of Policy
U. S. Department of Energy
(202) 586-4333
carol.battershell@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 11:39 AM
**To:** Fibbe, George
**Cc:** Konieczny, Katherine
**Subject:** RE: MW

Privileged and Confidential

(b) (5)

-----Original Message-----
From: Fibbe, George
Sent: Tuesday, June 05, 2018 2:30 PM
To: Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
Cc: Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
Subject: MW

Privileged and Confidential

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 11:41 AM
**To:** Fibbe, George
**Subject:** FW: Mc

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, June 05, 2018 1:18 PM
To: Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
Subject: Mc

FYSA

https://www.washingtonexaminer.com/policy/energy/energy-department-has-the-power-to-save-coal-and-nuclear-plants-ferc-chairman-says

Energy Department has the power to save coal and nuclear plants, FERC chairman says
by Josh Siegel

| June 05, 2018 11:33 AM

Power Facilities As Trump Bailout Of Coal Plant In Gas Country Has Locals Shrugging
The Energy Department is considering requiring regional grid operators to buy power from select coal and nuclear plants for two years, using executive authority under emergency provisions of the Federal Power Act and the Defense Production Act.

(Justin Merriman/Bloomberg)

Energy Secretary Rick Perry has the authority to act to save coal and nuclear plants, Kevin McIntyre, chairman of the Federal Energy Regulatory Commission, said Tuesday. He also conceded his panel of independent energy regulators would not necessarily have a role in approving or implementing an executive order.

"Under the law as it's written and regulations of DOE, there are scenarios that could develop that would not involve a rate proceeding before FERC," McIntyre said at the EIA Energy Conference in Washington, D.C. "We are looking at those details now."

McIntyre was referring to Perry potentially using Section 202(c) of the Federal Power Act. "The fact that it's been invoked rarely, doesn't render it any less valid to me," McIntyre said.

The Energy Department is considering requiring regional grid operators to buy power from select coal and nuclear plants for two years, using executive authority under emergency provisions of the Federal Power Act and the Defense Production Act.

FirstEnergy Solutions, a Ohio utility with coal and nuclear plants facing closure, has asked Perry to use the authority, which the Energy Department can invoke to order certain power facilities to stay open in a crisis.



AMERICAN OVERSIGHT

McIntyre said if the Energy Department were to act using that law, regional grid operators would work with the plants to arrange a payment agreement. If the parties could not reach an agreement, FERC then would get involved to figure out a payment structure.

The FERC chairman also said he could envision Perry using the Defense Production Act. McIntyre had previously said the law is "perhaps not the best fit" to help uneconomic coal and nuclear plants. The Cold War-era law allows the president to prioritize the federal government's ability to obtain critical, scarce industrial materials in a time of war, ensuring the government can buy the goods before others.

The law also can be used to spur an industry to produce more of a scarce critical resource through a loan guarantee or direct subsidy, effectively nationalizing it.

"It has the feel of a wartime emergency [law] but it then goes on to include more emergency type language that could be invoked to capture this situation," McIntyre said Tuesday. "That is a decision not for me or anybody at FERC but for the secretary of energy."

McIntyre's deference to the Energy Department comes after FERC last year rejected a proposal from Perry to provide special payments to coal and nuclear plants.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 11:56 AM
**To:** Fibbe, George
**Cc:** Cody, Bill
**Subject:** list of documents
**Attachments:** DPA text.pdf; UNITS INTERNAL DRAFT (5-31-2018 1600 -- for S3).docx

Privileged and Confidential

George,

Here's the documents I think Bernie needs tomorrow:

Current drafts: order, addendum, memo

Unit list (attached) (prints out legal size)

DPA text (attached)

Fygi testimony

[I will separately have a full copy of FPA prepared]



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 11:57 AM
**To:** Cortes, Farzaneh (CONTR)
**Subject:** FPA
**Attachments:** Federal Power Act.pdf

Faye,
Please print out a single sided copy of this and put in a 3 ring with cover page and spine title for Bernie.
Thanks,
Sean



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 12:26 PM
**To:** Fibbe, George;Konieczny, Katherine
**Subject:** RE: Document

PRIVILEGED AND CONFIDENTIAL

(b) (5)

---

**From:** Fibbe, George
**Sent:** Tuesday, June 05, 2018 1:40 PM
**To:** Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
**Cc:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** RE: Document

(b) (5)

George Fibbe
Deputy General Counsel,
Litigation, Regulation & Enforcement
Office: 202-287-6240
Cell: (b) (6)

---

**From:** Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
**Date:** Tuesday, Jun 05, 2018, 1:26 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Subject:** RE: Document

(b) (5)

---

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 12:56 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>; Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>
**Subject:** RE: Document

(b) (5)

---

**From:** Fibbe, George
**Sent:** Tuesday, June 05, 2018 12:40 PM
**To:** Konieczny, Katherine <Katherine.Konieczny@Hq.Doe.Gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** Document

Privileged and Confidential



AMERICAN OVERSIGHT

(b) (5)

George Fibbe
Deputy General Counsel,
Litigation, Regulation & Enforcement
Office: 202-287-6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | Cunningham, Sean |
| **Sent:** | Tuesday, June 05, 2018 12:33 PM |
| **To:** | Fibbe, George |
| **Subject:** | IEEPA |
| **Attachments:** | International Emergency Economic Powers Act.pdf |

Privileged and Confidential

As promised



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** Cunningham, Sean
**Sent:** Tuesday, June 05, 2018 2:50 PM
**To:** Hynes, Shaylyn
**Subject:** RE: OP statement

Thanks. They're aware of the move, yes. Glad to have Bernie back!

**From:** Hynes, Shaylyn
**Sent:** Tuesday, June 05, 2018 5:48 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** RE: OP statement

Looks good to me. I assume all front office is aware? I was not, so, congratulations!

**From:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Date:** Tuesday, Jun 05, 2018, 5:45 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** OP statement

Pre-Decisional

Shaylyn,

Sorry to bother you with this. As you may know, I am going over to S2's office tomorrow and Bernie is taking my place as OP Director on day 1 of his return (tomorrow). I need to send out something to my staff. I've discussed this with Bernie, and he rightly suggested I run it by you. Would you mind taking a look and let me know if you are ok with this? This would be only an email text to my staff. Thanks --Sean

Draft memo to DL-OP-ALL

Dear Office of Policy team,

Effective tomorrow, I will be leaving the Office of Policy to serve as Senior Policy Advisor in the Office of the Deputy Secretary. Also effective tomorrow, someone who is already familiar with the Office of Policy and excited about its role within DOE will be your new Executive Director – our former DOE colleague Bernie McNamee.

Bernie has served in a number of legal and policy positions throughout his career. He previously served as Deputy General Counsel for Energy Policy at DOE and most recently was director of an energy initiative at the Texas Public Policy Foundation. Bernie's experience includes being partner and senior counsel practicing energy law at McGuire Woods LLP and working as a senior policy advisor and counsel to a U.S. Senator.

Carol Battershell has also been serving in multiple roles for quite some time. (b) (6)
(b) (6) Carol joined the policy area when the EPSA office was stood up almost five years ago. She has ably served as Senior Advisor, Deputy Director, Principal Deputy Director and Acting Director during that time. (b) (6)
(b) (6)

By way of initial introduction, Bernie and Carol and I will meet with Office Directors on Wednesday afternoon.



AMERICAN OVERSIGHT

In my time in the Office of Policy I have been impressed with the wide range of deep knowledge and skill that you possess and use in service of the Department, and I will be nearby as Bernie and I will continue to work closely together.

Please join me in welcoming Bernie to the Office of Policy and also giving Carol our best wishes in her next adventure.

Sean



AMERICAN OVERSIGHT

**Department of Energy**
**Washington, DC 20585**

Sam Gomberg
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

JUN 2 8 2019

Via email to: sgomberg@ucsusa.org

Re: HQ-2018-01436-F

Dear Mr. Gomberg:

This is a third partial response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> All emails, email attachments, or calendar invitations/entries sent or received by the following people:
>
> a. Brian McCormack
> b. Mark Menezes
> c. Steve Winberg
> d. Mark Maddox
> e. Sean Plasynski
> f. Bruce Walker
> g. Edward McGinnis
> h. Theodore Garrish
> i. Martin Dannenfelser
> j. Jennifer Loraine
> k. Daniel Simmons
> l. Sean Cunningham
> m. Shaylyn Hynes
>
> Provide records from May 30, 2018 to June 5, 2018.

In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."

AMERICAN OVERSIGHT

Your request was assigned to DOE's Office of the Executive Secretariat (ES); the Office of Fossil Energy (FE); the Office of Congressional and Intergovernmental Affairs (CI); the Office of Public Affairs (PA); the Office of Electricity (OE); the Office of Nuclear Energy (NE); the Office of International Affairs (IA); the Office of Management (MA); the Office of Environmental Management (EM); and the National Energy Technology Laboratory (NETL) to conduct a search of their files for responsive documents.

DOE started its search on August 8, 2018, which is the cut-off date for responsive documents. You received a first partial response on March 18, 2019 consisting of twenty-three (23) documents. You received a second partial response on May 17, 2019 consisting of fifty-two (52) documents. This letter serves as a third partial response for DOE. DOE is continuing to process your request for additional responsive documents, which will be provided to you in subsequent responses.

At this time, DOE has located one hundred and forty-eight (148) documents responsive to your request. Upon review, DOE has determined that certain information should be withheld pursuant to Exemptions 4, 5, 6, and 7(C) of the FOIA, 5 U.S.C. § 552(b)(4), (b)(5), (b)(6) and (b)(7)(C). One document, "Document 24", is being transferred to the Department of State.

The Department of State will respond directly to you under separate cover. If you have any questions about the Department of State's processing of the request, please contact Kellie Robinson at U.S. Department of State, at A/GIS/IPS/PP, SA-2 Suite 8100, Washington, D.C. 20522-0208. She can also be reached by email at RobinsonKN@state.gov or phone at 202-261-8484.

Exemption 4 of the FOIA protects "trade secrets and commercial or financial information obtained from a person and privileged or confidential." 5 U.S.C. § 552(b)(4). This exemption is intended to protect the interests of both the Government and submitters of information. Exemption 4 affords protection to submitters who provide trade secrets, or commercial or financial information to the Government by safeguarding them from the competitive disadvantages that could result from disclosure. The exemption covers two broad categories of information in Federal agency records: 1) trade secrets, and 2) information that is (a) commercial or financial, and (b) obtained from a person, and (c) privileged and confidential.

Portions of the enclosed documents that are withheld pursuant to Exemption 4 include sensitive commercial and financial information that is maintained in confidence by the company and that is not available in public sources. Such proprietary information being withheld includes deployment details, locations, and timing. Public disclosure of this information would cause substantial harm to company's competitive interests. Specifically, disclosing business strategies and financing information would provide an unfair advantage to competitors and may affect investor relations and/or valuation of the company. Furthermore, disclosure may curtail companies from providing such information to the government in the future. For these reasons, this information is being withheld.

In the *Critical Mass* decision, the court drew a distinction between information that was voluntarily submitted to a federal agency versus an involuntary submission of information.



AMERICAN OVERSIGHT

*Critical Mass Energy Project v. NRC,* 975 F.2d 871 (D.C. Cir. 1992) (en banc). Under *Critical Mass*, voluntarily submitted information is categorically protected as "confidential information" provided it is information that is not "customarily disclosed" to the general public by the submitter. In this case, a news reporting company submitted reporting and analysis to DOE on a voluntary basis. This information is analyzed pursuant to the voluntary prong of the *Critical Mass* test.

The voluntarily submitted information withheld under Exemption 4 consists of proprietary information that is maintained in confidence by the submitter company and that is not customary released to the general public. The information consists of reporting and analysis that are available only to subscribing members via a subscription with the appropriate company. Specifically, POLITICO requires an individual to subscribe to its services via a payment plan, which enables the subscriber to view certain POLITICO articles and information. Portions of emails that include such articles and information are therefore being withheld under Exemption 4 of the FOIA.

Exemption 5 protects "inter-agency or intra-agency memorandums or letters that would not be available by law to a party other than an agency in litigation with the agency." 5 U.S.C. § 552(b)(5). This exemption has been construed to exempt those documents normally privileged in the civil discovery context, such as attorney-client communications, attorney-work product documents, and deliberative process material.

The information withheld under Exemption 5 has been deemed pre-decisional and deliberative in nature, including pre-decisional discussions between DOE staff. The DOE may consider these preliminary views as part of the process that will lead to the agency's final decision about these matters. The information does not represent a final agency position, and its release would compromise the deliberative process by which the government makes its decisions. Withholding this information protects against the premature disclosure of proposed policies regarding personnel matters, protects the candor of intra-agency communications, and prevents confusion to the public that could result from disclosing alternative rationales for agency decisions.

With respect to the discretionary disclosure of deliberative information, the quality of agency decisions would be adversely affected if frank, written discussion of policy matters were inhibited by the knowledge that the content of such discussion might be made public. For this reason, DOE has determined that discretionary disclosure of the deliberative material is not in the public interest because foreseeable harm could result from such disclosure.

In addition, these documents contain communications involving DOE attorneys and are being withheld under the attorney work-product and attorney client privileges. The information in these documents includes deliberations of litigation strategy and information prepared by attorneys in anticipation of litigation. Further, several documents contain confidential communications between DOE attorneys and the staff of the program office to which they provide legal advice.

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5



AMERICAN OVERSIGHT

U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of personal information, cell numbers, teleconference numbers and passcodes. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

Exemption 7 protects from disclosure "records or information compiled for law enforcement purposes" that fall within the purview of one or more of six enumerated categories. To qualify under Exemption 7, the information must have been compiled, either originally or at some later date, for a law enforcement purpose, which includes crime prevention and security measures, even if that is only one of the many purposes for compilation. Exemption 7(C) provides that, "records of information compiled for law enforcement purposes" may be withheld from disclosure, but only to the extent that the production of such documents "could reasonably be expected to constitute an unwarranted invasion of personal privacy…" In applying Exemption 7(C), DOE considered whether a significant privacy interest would be invaded, whether the release of the information would further the public interest in shedding light on the operations or activities of the Government, and whether in balancing the privacy interests against the public interest, disclosure would constitute unwarranted invasion of privacy.

The names, contact information and tasks withheld identify security personnel. Those individuals have a significant privacy interest in their identities, which, if known, could pose a serious safety risk to them or those to whom they are providing protection, and may result in an unwarranted invasion of their privacy. Releasing their identities or contact information would reveal little about the operations or activities of the Government. Therefore, disclosure of this information could reasonably be expected to constitute an unwarranted invasion of personal privacy.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that when a FOIA request is denied, agencies will be defended and justified in not releasing the material on a discretionary basis "if (1) the agency reasonably foresees that disclosure will harm an interest protected by one of the statutory exemptions, or (2) disclosure is prohibited by law." The Attorney General's memorandum also provides that whenever full disclosure of a record is not possible, agencies "must consider whether they can make a partial disclosure." Thus, we have determined that, in certain instances, a partial disclosure is proper. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.



AMERICAN OVERSIGHT

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, a redacted version of the document is being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 16, 2018, letter, you were advised that your request was placed in the "scientific" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

DOE is continuing to process your request. If you have questions about the processing of the request or this letter, please contact Ms. Ayana Crawford in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at Ayana.Crawford@hq.doe.gov.



AMERICAN OVERSIGHT

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01436-F**

**Third partial response to the request from Mr. Gomberg for:**

> **All emails, email attachments, or calendar invitations/entries sent or received by the following people:**
>
> **a. Brian McCormack**
> **b. Mark Menezes**
> **c. Steve Winberg**
> **d. Mark Maddox**
> **e. Sean Plasynski**
> **f. Bruce Walker**
> **g. Edward McGinnis**
> **h. Theodore Garrish**
> **i. Martin Dannenfelser**
> **j. Jennifer Loraine**
> **k. Daniel Simmons**
> **l. Sean Cunningham**
> **m. Shaylyn Hynes**
>
> **Provide records from May 30, 2018 to June 5, 2018.**

**In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."**

At this time, DOE has identified one hundred and forty-eight (148) additional documents responsive to your request

- Forty-eight (48) documents *are being released in full.*
- Ninety-Nine (99) documents *are being released in part pursuant to Exemptions 4, 5, 6 and/or 7(C).*
- One (1) document is being transferred to the Department of State for direct response.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 4:55 AM
**To:** Smith, Wayne D
**Subject:** RE: FOR REVIEW: (b) (5)

That works.

---

**From:** Smith, Wayne D
**Sent:** Friday, May 25, 2018 6:59 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: FOR REVIEW: (b) (5)

Incoming from Staff Sec. Potential reviewers: PA & OP. S2's office for awareness. Would you like to include anyone else?

V/r,
Wayne

---

**From:** Staff Secretary <(b) (6) >
**Date:** Friday, May 25, 2018, 5:54 PM
**To:** Smith, Wayne D <Wayne.Smith@hq.doe.gov>, juliette_lillie@ios.doi.gov <juliette_lillie@ios.doi.gov>, Scott Hommel <scott_hommel@ios.doi.gov>, geale.nicholas.c@dol.gov <geale.nicholas.c@dol.gov>, Walter, Courtney E - OSEC <Walter.Courtney.E@DOL.gov>, jackson.ryan@epa.gov <jackson.ryan@epa.gov>, Knight, Shahira E. EOP/WHO <(b) (6) >, Chalkey, Richard J. EOP/WHO <(b) (6) >, Miller, Julie L. EOP/OMB <Julie_Miller@omb.eop.gov>, Robbins, Amanda H. EOP/OMB <Amanda.H.Robbins@omb.eop.gov>, Donaldson, Annie M. EOP/WHO <(b) (6) >, Moran, John S. EOP/WHO <(b) (6) >, Bremberg, Andrew P. EOP/WHO <(b) (6) >, Leggitt, Lance B. EOP/WHO <(b) (6) >, Sherk, James B. EOP/WHO <(b) (6) >, Wold, Theo J. EOP/WHO <(b) (6) >, DL WHO LEG AFFAIRS Staff Sec <DL.LEGAFFAIRS.StaffSec@whmo.mil>, Greenwood, Daniel Q. EOP/WHO <(b) (6) >, Hoelscher, Douglas L. EOP/WHO <(b) (6) >, Clark, Justin R. EOP/WHO <(b) (6) >, Conway, Kellyanne E. EOP/WHO (b) (5) Sanders, Sarah H. EOP/WHO (b) (5) Schlapp, Mercedes V. EOP/WHO <(b) (6) >, Hudson, Renee R. EOP/WHO <(b) (6) >, Shah, Raj S. EOP/WHO <(b) (6) >, Walters, Lindsay E. EOP/WHO <(b) (6) >, Gidley, Hogan H. EOP/WHO <(b) (6) >, Ditto, Jessica E. EOP/WHO <(b) (6) >, Nasim, Laura F. EOP/WHO <(b) (6) >, Kratsios, Michael J. EOP/OSTP <(b) (6) >, Diana, Grace A. EOP/OSTP <(b) (6) >, Neumayr, Mary B. EOP/CEQ <(b) (6) >, Smith, Katherine R. EOP/CEQ <(b) (6) >, Sullivan, Joseph W. EOP/CEA <(b) (6) >, Nordquist, DJ D. EOP/CEA <(b) (6) >
**Cc:** Staff Secretary <(b) (6) >
**Subject:** FOR REVIEW: (b) (5)

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 6:19 AM
**To:** Maddox, Mark;Menezes, Mark;Cunningham, Sean;Fibbe, George;Winberg, Steven
**Subject:** RE: CANCELED: (b) (5)

Thanks. I've alerted Doug Little who is having lunch with Powelson today. They're former state commission colleagues.

---

**From:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 8:46 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Subject:** FW: CANCELED: (b) (5)

FYI

*Mark R. Maddox*
*Principal Deputy Assistant Secretary*
*Office of Fossil Energy*
*U.S. Department of Energy*
*Ph: 202.586.1619*
*Email: mrmaddox@hq.doe.gov*
*S:* (b) (6)

**From:** Wilson, James E. [mailto:James.Wilson@NETL.DOE.GOV]
**Sent:** Wednesday, May 30, 2018 8:13 AM
**To:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>; Winberg, Steven <Steven.Winberg@hq.doe.gov>; Maddox, Mark <MRMaddox@hq.doe.gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Plasynski, Sean (NETL) <sean.plasynski@netl.doe.gov>; Gentry, Randall W (NETL) <randall.gentry@netl.doe.gov>; Lakatos, Margie (NETL) <margie.lakatos@netl.doe.gov>
**Subject:** CANCELED: (b) (5)
**Importance:** High

Steve et.al.

NETL received word via voicemail from Brian George w/ FERC late yesterday informing us that (b) (5) has had a change of plans and will not be able to visit NETL next week. He passed along the (b) (5) apologies for the change of plans and said they hoped the visit could be rescheduled for some time in the future.

He did not give any indication of the nature of the change of plans and we do not yet know if their visit to Longview has also been canceled. We will follow up with Longview today to see if the (b) (5) tour there is still on. We will also follow up with Mr. George to gain additional insight regarding the change of plans.



AMERICAN OVERSIGHT

Related to the Annual Lab Plan meeting, NETL management is again available on June 6th if the meeting hasn't already been moved from everyone's calendar. We will await word on scheduling.

Jim

**James E. Wilson**
Executive Director and Chief Financial Officer
National Energy Technology Laboratory

James.Wilson@netl.doe.gov
**Office:** 412.386.6150 **Mobile:** (b) (6)
Address: 626 Cochrans Mill Road, Pittsburgh, PA 15236



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 6:20 AM
**To:** Fibbe, George;Wilmot, Dan;Colgary, James
**Subject:** RE: SC Litigation

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 8:46 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** SC Litigation

Brian, Dan, Jim --

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 6:21 AM
**To:** Fibbe, George;Wilmot, Dan;Colgary, James
**Subject:** RE: SC Litigation

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 8:46 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** SC Litigation

Brian, Dan, Jim --

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Kristen Elfers |
| **Location:** | Brian McCormack's Office |
| **Start:** | Wed 5/30/2018 7:30 AM |
| **End:** | Wed 5/30/2018 8:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Elfers, Kristen |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:15 AM
**To:** Boozman, Shannon E
**Cc:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** RE: JPMorgan Chase Meeting Request- June 5 or 6

Shannon,

Thanks for the note and follow-up. We've had a number things moving around on our schedule due to WH driven activity. I'm not sure we can do this but am copying in the Scheduling Office for their awareness.

Just so I know, is Mr. Holmes only interested in meeting with Secretary Perry or are other senior leaders of interest in case the schedule doesn't work on our end? Thanks.

Brian

---

**From:** Boozman, Shannon E [mailto:shannon.e.boozman@jpmchase.com]
**Sent:** Wednesday, May 30, 2018 10:51 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: JPMorgan Chase Meeting Request- June 5 or 6

Hi Brian, just following up to see if we could come by the office next week?
Thanks!
Shannon

---

**From:** Boozman, Shannon E
**Sent:** Wednesday, May 23, 2018 12:17 PM
**To:** 'brian.mccormack@hq.doe.gov' <brian.mccormack@hq.doe.gov>
**Subject:** JPMorgan Chase Meeting Request- June 5 or 6

Dear Brian - hope all is well. As Head of Corporate Client Banking & Specialized Industries business within J.P. Morgan Commercial Banking, Rob Holmes heads up our energy business for the bank and will be in DC on June 5 and morning of June 6 and would like to quickly come by and meet Sec. Perry if possible. Rob is based in Texas and oversees multiple offices in the U.S. and Canada that provide traditional banking services, investment banking solutions and international capabilities to companies across all industries, typically with $500 million and greater in annual sales.

Rob can provide a quick overview of the trends we are seeing across the country in energy sector. As part of his portfolio, Rob oversees energy companies ranging from small, private businesses to global, diversified operations. Separately, I've attached an interesting paper on what the electoral college would look like if it was based on food and energy production.

Let me know of any questions and thanks for your consideration!

Best, Shannon

Shannon Boozman
Federal Government Relations



AMERICAN OVERSIGHT

JPMorgan Chase & Co.
202.585.1351 office
(b) (6) cell

This message is confidential and subject to terms at: http://www.jpmorgan.com/emaildisclaimer including on confidentiality, legal privilege, viruses and monitoring of electronic messages. If you are not the intended recipient, please delete this message and notify the sender immediately. Any unauthorized use is strictly prohibited.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:15 AM
**To:** Gerdes, Stan
**Cc:** Wallwork, Luke;Almstead, Deidre;Wilmot, Dan
**Subject:** RE: Next Week

Copy.

-----Original Message-----
From: Gerdes, Stan
Sent: Wednesday, May 30, 2018 10:21 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Wallwork, Luke <Luke.Wallwork@hq.doe.gov>; Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
Subject: RE: Next Week

I just got off the line w/ S1:

We're bringing him back Monday night & he's good with S3 speaking at EIA.

-----Original Message-----
From: McCormack, Brian
Sent: Tuesday, May 29, 2018 7:07 PM
To: (b) (6)
Cc: Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>; Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
Subject: Next Week

Sir,

Attached is what M, T, & W were looking like (b) (5) Some items we'll have to work on getting back on schedule include:

-Speech at the DOE EIA Conference (S3 was standing in for you...and we can leave that way if need be)
-FEMA Briefing w/ POTUS on Wednesday
-(b) (5)

-(b) (5)
-Argentina Pre-Briefs
-Meeting with Cummins CEO

-Reminder (b) (6) and you're going to Oak Ridge for the day on Friday, June 8.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:16 AM
**To:** Turenne, William;Haus, Bob;Liben, Paul;Hynes, Shaylyn
**Cc:** Assafe, Yordanos;Wilmot, Dan
**Subject:** RE: EIA Energy Conference agenda

This will be for S3. Alerting his office now.

What do we need to cover in the 15 minutes?

---

**From:** Turenne, William
**Sent:** Wednesday, May 30, 2018 9:06 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** RE: EIA Energy Conference agenda

Hey Brian,

Now that this is back to a possibility for S1 (or even if it ends up being S3) can Paul, Shaylyn and I get 15 minutes of time with you?

Bill

---

**From:** McCormack, Brian
**Sent:** Wednesday, May 23, 2018 4:57 PM
**To:** Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** RE: EIA Energy Conference agenda

S1 is now not going to be able to do this. Scheduling is looking to see if S3 can.

---

**From:** Turenne, William
**Sent:** Wednesday, May 23, 2018 4:33 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda

Hey Brian,

Hoping we might be able to get a little time with you before the holiday weekend to talk about specific goals and messages for the EIA speech.

Thanks,



AMERICAN OVERSIGHT

Bill

---

**From:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Date:** Wednesday, May 23, 2018, 4:19 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda

Bob and Bill,

Could we all meet with Brian on this?

The goal would be clear direction on this speech in advance of the Memorial Day weekend.

Thanks.

Paul

---

**From:** Haddad, Zead
**Sent:** Wednesday, May 23, 2018 3:30 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Parrish, Lynn (EIA) <lynn.parrish@eia.gov>
**Cc:** Liben, Paul <Paul.Liben@hq.doe.gov>; Sweetnam, Dale (EIA) <dale.sweetnam@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Good afternoon,

Materials would be appreciated by COB Wednesday, May 30th.

Please let me know if you have any questions.

Thank you.
6-6431

---

**From:** Habansky, Sarah
**Sent:** Monday, May 21, 2018 4:57 PM
**To:** Parrish, Lynn (EIA) <lynn.parrish@eia.gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda

Hi Lynn,

We will need some event materials for the Secretary's book. I looped in Zead who can get you what you need to fill out and when he needs it.

I know PA is working on remarks as well

---

**From:** Almstead, Deidre
**Sent:** Monday, May 21, 2018 4:23 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda



AMERICAN OVERSIGHT

**From:** Parrish, Lynn [mailto:Lynn.Parrish@eia.gov]
**Sent:** Monday, May 21, 2018 1:00 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Cc:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Brasher, Kelsey (CONTR) (EIA) <kelsey.brasher@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Stan,

Attached is the completed event form along with other information requested. We will provide an updated attendee list and media list the week before the conference.

Thanks,
Lynn

---

**From:** Parrish, Lynn
**Sent:** Monday, May 21, 2018 10:24 AM
**To:** 'Gerdes, Stan' <Stan.Gerdes@hq.doe.gov>
**Cc:** Almstead, Deidre (HQ) <deidre.almstead@hq.doe.gov>; Brasher, Kelsey (CONTR) <kelsey.brasher@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Stan,

We are very happy that the Secretary will speak at our conference again this year.

We will get the event form to you this morning. How long will the Secretary speak and will he do Q&A after his remarks? He spoke for 15 minutes last year and did not do Q&A.

Thanks,
Lynn

---

**From:** Gerdes, Stan [mailto:Stan.Gerdes@hq.doe.gov]
**Sent:** Friday, May 18, 2018 3:19 PM
**To:** Sweetnam, Dale <Dale.Sweetnam@eia.gov>
**Cc:** Parrish, Lynn <Lynn.Parrish@eia.gov>; Almstead, Deidre (HQ) <deidre.almstead@hq.doe.gov>
**Subject:** RE: EIA Energy Conference agenda

Dale,

I would like to confirm the Secretary for the 8:30am slot on Tuesday, June 5th.

Please let me know the proper contact to work with regarding logistics – I've attached the Secretary's event form.

Thanks,
Stan

---

**From:** Sweetnam, Dale [mailto:Dale.Sweetnam@eia.gov]
**Sent:** Friday, May 18, 2018 2:16 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Cc:** Parrish, Lynn (EIA) <lynn.parrish@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Hi Stan,



AMERICAN OVERSIGHT

I just called Lynn on her cell. She said that we'd love to have the Secretary speak at lunch on June 5, but if the morning slot (8:30 a.m.) is better, we can make it work.

Dale

---

**From:** Sweetnam, Dale
**Sent:** Friday, May 18, 2018 2:12 PM
**To:** Gerdes, Stan (HQ) <stan.gerdes@hq.doe.gov>
**Cc:** Parrish, Lynn <Lynn.Parrish@eia.gov>
**Subject:** EIA Energy Conference agenda

Hi Stan,

Here is the website for the conference. You can find the agenda for both days at the bottom of the page.

http://wxq47w.attendify.io/#

Please let me know if you have any questions.

Dale Sweetnam
U.S. Energy Information Administration
202-586-0851



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:19 AM
**To:** emilygrace.mate@navy.mil;Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** Invite to USS Constitution

Stan and Deidre,

Meet Emily Grace at SecNav's office. She just called to extend an invite for S1 to fly up to Boston and visit the USS Constitution on Friday, June 8. I declined based on our trip to ORNL but wanted to connect you in case plans change on either end. It's a great trip and one I know Secretary Perry would like to consider if there is a future opportunity.

Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 9:55 AM
**To:** Uddo, Joe;Garrish, Theodore
**Subject:** FW: Jonathan Lang Resume 5.6.18.pdf
**Attachments:** Jonathan Lang Resume 5.6.18.pdf

For consideration

---

**From:** Brian McCormack [mailto(b) (6) ]
**Sent:** Wednesday, May 30, 2018 11:11 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Fwd: Jonathan Lang Resume 5.6.18.pdf

Begin forwarded message:

> **From:** Brian McCormack <(b) (6) >
> **Date:** May 20, 2018 at 7:17:37 AM EDT
> **To:** Ted Garrish (b) (6) >
> **Subject: Jonathan Lang Resume 5.6.18.pdf**
>
> One for you



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | McCormack, Brian |
| **Sent:** | Wednesday, May 30, 2018 10:30 AM |
| **To:** | Hynes, Shaylyn |
| **Subject:** | FW: FOIA Request HQ-2017-00476-F (Premium Travel) |
| **Attachments:** | HQ-2018-00476-F Response Letter.pdf; HQ-2018-00476-F Responsive Document-FINAL.pdf; HQ-2018-00476-F Redlined Responsive Documents.pdf; HQ-2018-00476-F Original Request.pdf |

---

**From:** Sullivan, Elizabeth (CONTR) <Elizabeth.Sullivan@Hq.Doe.Gov>
**Date:** Wednesday, May 30, 2018, 1:11 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FOIA Request HQ-2017-00476-F (Premium Travel)

Good afternoon Mr. McCormack,

Per our conversation, please find attached the premium travel report for fiscal year 2017. I have attached the original FOIA request ("HQ-2018-00476-F Original Request"), the redlined copy of the responsive document and what was ultimately released to the requester. We released this to Mr. Kevin Bogardus from E&E news yesterday, May 29, 2018.

Please let me know if you have any questions or concerns.

Thank you,
Elizabeth

Elizabeth A. Sullivan, Esq.
Program Manager
Central Research, Inc., Contractor
U.S. Department of Energy
1000 Independence Ave., SW
Washington, D.C. 20585
t: 202-586-9141



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 11:23 AM
**To:** Flynn, Matthew J. EOP/WHO
**Subject:** RE:

FYI https://www.whitehouse.gov/nsc/

---

**From:** Flynn, Matthew J. EOP/WHO [mailto:(b) (6)
**Sent:** Wednesday, May 30, 2018 11:32 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:**

https://www.energy.gov/contributors/kevin-knobloch

Matthew J. Flynn
Special Assistant to the President
Senior Director for Cabinet Affairs
The White House
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 11:26 AM
**To:** Hynes, Shaylyn;Wilmot, Dan
**Subject:** RE: Doe

I'm available.

---

**From:** Hynes, Shaylyn
**Sent:** Wednesday, May 30, 2018 2:25 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Doe

Something is wrong with email because this came through just a few minutes ago for me. she called and they will not hold until tomorrow.

Do either of you have a moment to chat in the next hour? (b) (5)

---

**From:** Ebbs, Stephanie <Stephanie.Ebbs@abc.com>
**Date:** Wednesday, May 30, 2018, 1:08 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Doe

The document is attached, I'll talk to my editor about waiting because I do think it's important to get more context.

It was described to me as a log of premium travel costs for FY2017. I wanted to verify a couple of things like does listing the "exception code" mean the trip was approved by ethics officials under that code? When they list the "exceptional security circumstances" exception does that reference a specific security issue or threat?

Can you also provide more detail about the trips listed for Sec. Moniz, Sec. Perry, and Mrs. Perry including the date and the purpose of the trip? I didn't see if the secretary's schedules were posted online anywhere so if it's already available somewhere please let me know.

Thank you!

Stephanie Ebbs
ABC News-Washington
(desk) 202-222-7015
(cell) (b) (6)
@stephebbs

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 12:40:17 PM



AMERICAN OVERSIGHT

**To:** Ebbs, Stephanie
**Subject:** Doe

Hey! Nice chatting. I am running out of the office now but if you send me that document or Info ASAP I can try to run this down for you (but I will be on a flight) if I'm not able to is there any way to give us the night on this since I would have to track stuff down?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 11:26 AM
**To:** Mocarski, Ashley D. EOP/WHO;Almstead, Deidre;McGinley, William J. EOP/WHO
**Subject:** RE: POTUS Scheduling Proposal (b) (5)

Thanks. (b) (5) If there is any status update please let us know. Thanks much.

-----Original Message-----
From: Mocarski, Ashley D. EOP/WHO [mailto:(b) (6) ]
Sent: Wednesday, May 30, 2018 2:25 PM
To: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; McGinley, William J. EOP/WHO <(b) (6) >
Cc: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: POTUS Scheduling Proposal (b) (5)

Received. Thank you! We will keep you both updated on the status.

-----Original Message-----
From: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
Sent: Wednesday, May 30, 2018 2:22 PM
To: McGinley, William J. EOP/WHO <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >
Cc: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: POTUS Scheduling Proposal (b) (5)

Bill and Ashley,

Brian asked me to send over the attached scheduling proposal for consideration.

Please let me know if you have any questions or need any more information.

Thank you!
Deidre

Deidre Almstead
Office of the Secretary
Department of Energy



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 12:16 PM
**To:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** FW: Doe

---

**From:** Hynes, Shaylyn
**Sent:** Wednesday, May 30, 2018 2:45 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Doe

---

**From:** Ebbs, Stephanie <Stephanie.Ebbs@abc.com>
**Date:** Wednesday, May 30, 2018, 2:43 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Doe

Here are the travel costs that I have from looking through the documents

The department spent about $63,500 on premium travel for Sec. Perry in his first six months, which was about $50,000 more than the cost of flying coach on the same trips.

Before Sec. Moniz left the agency in January the cost of his premium travel was about $42,500, which was an additional $30,000 compared to coach.

All of those flights for both secretaries were approved under the security exemption.

The document also shows that Mrs. Perry's premium flights initially cost $20,000 (but as you said that cost was reimbursed).

Stephanie Ebbs
ABC News-Washington
(desk) 202-222-7015
(cell) (b) (6)
@stephebbs

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 2:20:22 PM
**To:** Ebbs, Stephanie
**Subject:** RE: Doe



AMERICAN OVERSIGHT

Off the record- This just came through, it was in my spam and I only saw it after your second email. I am close to boarding a plane for three hours so I'm not sure how I'll be able to get this done and get the information but I'll try

---

**From:** Ebbs, Stephanie <Stephanie.Ebbs@abc.com>
**Date:** Wednesday, May 30, 2018, 1:08 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Doe

The document is attached, I'll talk to my editor about waiting because I do think it's important to get more context.

It was described to me as a log of premium travel costs for FY2017. I wanted to verify a couple of things like does listing the "exception code" mean the trip was approved by ethics officials under that code? When they list the "exceptional security circumstances" exception does that reference a specific security issue or threat?

Can you also provide more detail about the trips listed for Sec. Moniz, Sec. Perry, and Mrs. Perry including the date and the purpose of the trip? I didn't see if the secretary's schedules were posted online anywhere so if it's already available somewhere please let me know.

Thank you!

Stephanie Ebbs
ABC News-Washington
(desk) 202-222-7015
(cell) (b) (6)
@stephebbs

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 12:40:17 PM
**To:** Ebbs, Stephanie
**Subject:** Doe

Hey! Nice chatting. I am running out of the office now but if you send me that document or info ASAP I can try to run this down for you (but I will be on a flight) if I'm not able to is there any way to give us the night on this since I would have to track stuff down?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 2:24 PM
**To:** Everett, Max
**Subject:** FW: iSystems meeting request

Coming to you. Ok?

**From:** Jessee, Matt [mailto:matt.jessee@bclplaw.com]
**Sent:** Wednesday, May 30, 2018 4:49 PM
**To:** Oliver, Jack <jack.oliver@bclplaw.com>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Russell, Dave <dave.russell@bclplaw.com>
**Subject:** RE: iSystems meeting request

Brian – thanks for your willingness to help. This is the company Jack called about iSystems,
- https://www.isystemsgroup.com. Can you connect us to whoever is best political to come talk to about this?

**From:** Oliver, Jack
**Sent:** Friday, May 04, 2018 9:24 AM
**To:** 'Brian.mccormack@hq.doe.gov'
**Subject:** iSystems meeting request

Brian –

My law firm represents iSystems, a Service-Disabled Veteran-Owned Small Business IT Contractor. iSystems successfully managed one of the first major cloud transitions for the FAA. Here's their website
- https://www.isystemsgroup.com

Can you connect me to whoever you think is right political appointee who oversees information systems so I can bring them to meet?

Jack

This electronic message is from a law firm. It may contain confidential or privileged information. If you received this transmission in error, please reply to the sender to advise of the error and delete this transmission and any attachments.

We may monitor and record electronic communications in accordance with applicable laws and regulations. Where appropriate we may also share certain information you give us with our other offices (including in other countries) and select third parties. For further information (including details of your privacy rights and how to exercise them), see our updated Privacy Notice at www.bclplaw.com.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 2:39 PM
**To:** Krebs, Christopher
**Subject:** DOE Cyber Conference

Chris,

Here is the link to the DOE Cyber Conference next week in Austin: http://www.doecybercon.com/ Let me know if you need any more information. Thanks.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 2:42 PM
**To:** Varnasidis, Sophia;Gerdes, Stan;Little, Douglas;Garrish, Theodore
**Subject:** RE: Daniel Yergin

(b) (6)

-----Original Message-----
From: Varnasidis, Sophia
Sent: Wednesday, May 30, 2018 5:39 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Little, Douglas <Douglas.Little@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>
Subject: Daniel Yergin

Does anyone have a number for him?

SOPHIA A. VARNASIDIS
Chief of Staff
Office of the Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-0057



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 3:26 PM
**To:** Wallwork, Luke;Almstead, Deidre;Wilmot, Dan;Gerdes, Stan
**Subject:** RE: 5.31-6.12

LK had Mrs. P number.

---

**From:** Wallwork, Luke
**Sent:** Wednesday, May 30, 2018 6:25 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: 5.31-6.12

My guess is S1 gave Brittany AP contact info during lunch last week

---

**From:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 4:56 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: 5.31-6.12

(b) (6)

---

**From:** Anita Perry <(b) (6) >
**Date:** Wednesday, May 30, 2018, 5:46 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Subject:** Re: 5.31-6.12

Yes. Please
(b) (6)

Sent from my iPhone

> On May 30, 2018, at 3:45 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>
> Yes ma'am so sorry- I clicked the wrong version of the PDF here is the updated schedule with the cancellation reflected
>
> (b) (6)

>
> Thank you!
> Deidre
>
> -----Original Message-----



AMERICAN OVERSIGHT

> From: Anita Perry [mailto:(b) (6)
> Sent: Wednesday, May 30, 2018 4:36 PM
> To: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
> Subject: Re: 5.31-6.12
>
> I thought (b) (5) had been cancelled?
>
> Sent from my iPhone
>
>> On May 30, 2018, at 3:09 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>>
>> Hi Mrs. Perry,
>>
>> Attached is the schedule for May 31st to June 12th.
>>
>> Thank you!
>> Deidre
>>
>> Deidre Almstead
>> Office of the Secretary
>> Department of Energy
>>
>>
>> <5.31-6.12.pdf>
> <5.31-6.12.pdf>



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 3:25 PM
**To:** Almstead, Deidre;Wilmot, Dan;Wallwork, Luke;Gerdes, Stan
**Subject:** RE: 5.31-6.12

They discussed last week so yes, he's aware.

---

**From:** Almstead, Deidre
**Sent:** Wednesday, May 30, 2018 5:57 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: 5.31-6.12

(b) (6)

---

**From:** Anita Perry <(b) (6) >
**Date:** Wednesday, May 30, 2018, 5:46 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Subject:** Re: 5.31-6.12

Yes. Please
(b) (6)

Sent from my iPhone

> On May 30, 2018, at 3:45 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>
> Yes ma'am so sorry- I clicked the wrong version of the PDF here is the updated schedule with the cancellation reflected
>
> (b) (6)

>
> Thank you!
> Deidre
>
> -----Original Message-----
> From: Anita Perry [mailto:(b) (6)
> Sent: Wednesday, May 30, 2018 4:36 PM
> To: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
> Subject: Re: 5.31-6.12
>
> I thought (b) (5) had been cancelled?
>
> Sent from my iPhone
>
>> On May 30, 2018, at 3:09 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>>



AMERICAN OVERSIGHT

>> Hi Mrs. Perry,
>>
>> Attached is the schedule for May 31st to June 12th.
>>
>> Thank you!
>> Deidre
>>
>> Deidre Almstead
>> Office of the Secretary
>> Department of Energy
>>
>>
>> <5.31-6.12.pdf>
> <5.31-6.12.pdf>



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:04 AM
**To:** Nasim, Laura F. EOP/WHO
**Subject:** RE: Connect with DOE

I can do from 1215 pm onward. Sorry for the slow response.

---

**From:** Nasim, Laura F. EOP/WHO [mailto:(b) (6)
**Sent:** Wednesday, May 30, 2018 9:39 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Connect with DOE

Hi Brian!

What times are you free tomorrow?

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 7:55 AM
**To:** Nasim, Laura F. EOP/WHO <(b) (6) >
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Connect with DOE

Laura- just checking in if there's a time that works. There were two productive WH meetings on the topic yesterday that I want to update Mercy on. Thanks.

---

**From:** Nasim, Laura F. EOP/WHO [mailto:(b) (6)
**Sent:** Friday, May 25, 2018 6:53 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Connect with DOE

Hi Brian! - a meeting just came up with the COS. Just spoke with mercy and she would like to reschedule this for Tuesday

Sent from my iPhone

On May 24, 2018, at 7:51 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Laura- just checking on link for WAVES. Thanks

---

**From:** Nasim, Laura F. EOP/WHO <(b) (6) >
**Date:** Thursday, May 24, 2018, 4:37 PM
**To:** Schlapp, Mercedes V. EOP/WHO <(b) (6) >, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Connect with DOE



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

EXT-18-2615-L-000032

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:36 AM
**To:** Matheney, Doug;Assafe, Yordanos
**Subject:** RE: Material for Mickey Leland

I didn't receive anything.

---

**From:** Matheney, Doug
**Sent:** Thursday, May 31, 2018 7:01 AM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Material for Mickey Leland

I sent some information to Brian last night, with more to come this morning.
I am sorry about the delay.

---

**From:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 6:58 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Material for Mickey Leland

Good morning sir,

I hope all is well. I just wanted to check in and see if you have sent the material for Brian this morning as I have not received anything on my end.

Thank you so much and I look forward to hearing back from you.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:38 AM
**To:** Jessee, Matt;Oliver, Jack;Everett, Max
**Cc:** Russell, Dave
**Subject:** RE: iSystems meeting request

Gents, looping in our CIO Max Everett.

---

**From:** Jessee, Matt [mailto:matt.jessee@bclplaw.com]
**Sent:** Wednesday, May 30, 2018 4:49 PM
**To:** Oliver, Jack <jack.oliver@bclplaw.com>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Russell, Dave <dave.russell@bclplaw.com>
**Subject:** RE: iSystems meeting request

Brian – thanks for your willingness to help. This is the company Jack called about iSystems,
- https://www.isystemsgroup.com. Can you connect us to whoever is best political to come talk to about this?

---

**From:** Oliver, Jack
**Sent:** Friday, May 04, 2018 9:24 AM
**To:** 'Brian.mccormack@hq.doe.gov'
**Subject:** iSystems meeting request

Brian –

My law firm represents iSystems, a Service-Disabled Veteran-Owned Small Business IT Contractor. iSystems successfully managed one of the first major cloud transitions for the FAA. Here's their website
- https://www.isystemsgroup.com

Can you connect me to whoever you think is right political appointee who oversees information systems so I can bring them to meet?

Jack

This electronic message is from a law firm. It may contain confidential or privileged information. If you received this transmission in error, please reply to the sender to advise of the error and delete this transmission and any attachments.

We may monitor and record electronic communications in accordance with applicable laws and regulations. Where appropriate we may also share certain information you give us with our other offices (including in other countries) and select third parties. For further information (including details of your privacy rights and how to exercise them), see our updated Privacy Notice at www.bclplaw.com.



AMERICAN OVERSIGHT

Document 25

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:44 AM
**To:** Kolb, Ingrid
**Subject:** checking in...pls call at your convenience. (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:48 AM
**To:** McGinley, William J. EOP/WHO;Mocarski, Ashley D. EOP/WHO
((b) (6) )
**Subject:** (b) (5)

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:55 AM
**To:** CB Burnham
**Cc:** Assafe, Yordanos
**Subject:** RE: Biography | Office of the President | UTSA | University of Texas at San Antonio

Let's plan on a quick lunch then. I'll be there by 11:30.

---

**From:** CB Burnham [mailto:(b) (6) ]
**Sent:** Thursday, May 31, 2018 7:54 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** Re: Biography | Office of the President | UTSA | University of Texas at San Antonio

Thank you Brian. Can meet at Met Club around the corner for coffee or quick lunch too. (b) (6)

I really appreciate you doing this—thank you.

**********
Christopher Bancroft Burnham

On May 31, 2018, at 7:40 AM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Chris,
>
> I'll be downtown until 11:15. Will you be near the WH at that time?
>
> ---
>
> **From:** CB Burnham [mailto:(b) (6) ]
> **Sent:** Wednesday, May 23, 2018 7:46 PM
> **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> **Subject:** Biography | Office of the President | UTSA | University of Texas at San Antonio
>
> June 5. 11:30, your office?
>
> https://www.utsa.edu/president/biography/index.html
>
> # About Dr. Eighmy
>
> <iframe src="//www.googletagmanager.com/ns.html?id=GTM-TMNVDW" title="google tag manager" height="0" width="0" style="display:none;visibility:hidden"></iframe>



AMERICAN OVERSIGHT

# Biography



**Taylor Eighmy** is the 6th president of The University of Texas at San Antonio. In addition, Eighmy serves as a member of the UTSA faculty as a professor with appointments in the College of Engineering's department of Civil and Environmental Engineering, and the College of Sciences' department of Environmental Science and Ecology.

As an advocate for urban-serving public higher education, Eighmy is passionate about UTSA's role in developing San Antonio's knowledge economy by preparing future leaders and generating new knowledge that changes the world.

Eighmy brings a strong track record of advancing top research universities through strategic government collaborations, public-private partnerships and community engagement. Eighmy's experiences as an administrative leader, researcher, inventor and professor influenced his perspective as a champion of student success, particularly regarding the impact of experiential learning and undergraduate research programs.

Prior to arriving at UTSA in September 2017, Eighmy served as the chief research officer at three top public flagship universities: the University of New Hampshire, Texas Tech University and, most recently, at the University of Tennessee, Knoxville.

While at the University of Tennessee, Eighmy and colleagues at Oak Ridge



AMERICAN OVERSIGHT

National Laboratory directed efforts that resulted in the University of Tennessee's selection to lead the Institute for Advanced Composites Manufacturing Innovation, a $259 million public-private partnership supported by the U.S. Department of Energy.

**Education**
Ph.D. in Environmental Engineering - University of New Hampshire
M.S. in Civil Engineering - University of New Hampshire
B.S. in Biology - Tufts University

**Distinctions**

- Fellow, American Association for the Advancement of Science
- Fellow, National Academy of Inventors
- Diplomate, American Academy of Environmental Engineers and Scientists
- Inventor, Phosphate Mineral-Based Reactive Barrier Containment System (Patent US 6290637 B1)

**Research Interests**
Element speciation, environmental chemistry of leaching behavior, spectroscopic surface analysis, applied geochemistry, reactive barriers, reactive transport modeling, environmental microbiology, biofouling, biofilms, sustainability, carbon sequestration, carbon cycling, and recycled materials.

**Personal**
President Eighmy and his wife Peggy Eighmy have one daughter, Hannah, a NICU nurse at Children's National Medical Center in Washington, D.C. They enjoy fly fishing, hiking, cooking and playing with their three dogs.

*(Updated May 2018)*

# Join the President's Associates

If you are interested in becoming a President's Associates member, you can give directly online or contact Jessica Rios at 210-458-7705 or Jessica.rios@utsa.edu.



AMERICAN OVERSIGHT

<img height="1" width="1" style="display:none" src="https://www.facebook.com/tr?id=1702141916689197&ev=PageView&noscript=1"> <img src="//bat.bing.com/action/0?ti=5257293&Ver=2" height="0" width="0" style="display:none; visibility: hidden;"> <img height="1" width="1" style="display:none" src="https://www.facebook.com/tr?id=1102710886493041&ev=PageView&noscript=1"> <img height="1" width="1" style="display:none;" alt="" src="https://analytics.twitter.com/i/adsct?txn_id=ntolm&p_id=Twitter&tw_sale_amount=0&tw_order_quantity=0"> <img height="1" width="1" style="display:none;" alt="" src="//t.co/i/adsct?txn_id=ntolm&p_id=Twitter&tw_sale_amount=0&tw_order_quantity=0">

**********

Christopher Bancroft Burnham



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:05 AM
**To:** Smith, Wayne D;Wilmot, Dan
**Subject:** RE: ****WHITE HOUSE TASKING****

ok

---

**From:** Smith, Wayne D
**Sent:** Thursday, May 31, 2018 8:01 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: ****WHITE HOUSE TASKING****

Brian and Dan,

OP, GC, CI, IM, SC, and PA all cleared with no comments.

V/r,
Wayne

---

**From:** McCormack, Brian
**Sent:** Tuesday, May 29, 2018 6:46 PM
**To:** Smith, Wayne D <Wayne.Smith@hq.doe.gov>
**Subject:** RE: ****WHITE HOUSE TASKING****

That works

---

**From:** Smith, Wayne D
**Sent:** Tuesday, May 29, 2018 3:11 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** ****WHITE HOUSE TASKING****
**Importance:** High

Incoming from the Staff Secretary. Potential reviewers: OP, GC, CI, IM, SC, PA and S2 for awareness.

Is there anyone you would like for me to add or delete from the above list?

V/r,
Wayne

---

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Tuesday, May 29, 2018 2:02 PM
**To:** HookBH@state.gov; DonnellKL@state.gov; FrideresTF@state.gov; BrownCS@state.gov; Kenna, Lisa EOP <kennald@state.gov>; LoGerfoGD@state.gov; stm77@treasury.gov; Ryan.Brady@treasury.gov; Mohler, Hallock CAPT SD <Hallock.Mohler@sd.mil>; Matthew.Whitaker@usdoj.gov; Demi.Yeager@usdoj.gov; awilliams2@doc.gov; WTeramoto@doc.gov; ruth.knouse@dot.gov; geoff.burr@dot.gov; tom.cremins-1@nasa.gov; susanmb3@dni.gov; Scott_Hommel@ios.doi.gov; juliette_lillie@ios.doi.gov; Heidi.green@osec.usda.gov; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Smith, Wayne D <Wayne.Smith@hq.doe.gov>; christina.bobb@hq.dhs.gov;



AMERICAN OVERSIGHT

chad.wolf@hq.dhs.gov
**Cc:** Staff Secretary <(b) (6) >; dredl@ntia.doc.gov; patkins@ntia.doc.gov; dkhlopin@ntia.doc.gov; Rachael.bender@fcc.gov; Donald.stockdale@fcc.gov
**Subject:** (b) (5)

Attached please find a draft Presidential policy decision on developing a (b) (5) for America's future.

Affirmative clearance requested from: **State, DoD, DHS, DoJ, DoC, DoT, and NASA**. All other components are invited to comment, but affirmative clearance is not required.

Please send comments to Staff Sec by **10 AM Thursday, May 31**.

Thank you,

Staff Sec



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:05 AM
**To:** Smith, Wayne D;Wilmot, Dan
**Subject:** RE: ****WHITE HOUSE TASKING****

Hold on. How about CIO?

---

**From:** Smith, Wayne D
**Sent:** Thursday, May 31, 2018 8:01 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: ****WHITE HOUSE TASKING****

Brian and Dan,

OP, GC, CI, IM, SC, and PA all cleared with no comments.

V/r,
Wayne

---

**From:** McCormack, Brian
**Sent:** Tuesday, May 29, 2018 6:46 PM
**To:** Smith, Wayne D <Wayne.Smith@hq.doe.gov>
**Subject:** RE: ****WHITE HOUSE TASKING****

That works

---

**From:** Smith, Wayne D
**Sent:** Tuesday, May 29, 2018 3:11 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** ****WHITE HOUSE TASKING****
**Importance:** High

Incoming from the Staff Secretary. Potential reviewers: OP, GC, CI, IM, SC, PA and S2 for awareness.

Is there anyone you would like for me to add or delete from the above list?

V/r,
Wayne

---

**From:** Staff Secretary [(b) (6) ]
**Sent:** Tuesday, May 29, 2018 2:02 PM
**To:** HookBH@state.gov; DonnellKL@state.gov; FrideresTF@state.gov; BrownCS@state.gov; Kenna, Lisa EOP <kennald@state.gov>; LoGerfoGD@state.gov; stm77@treasury.gov; Ryan.Brady@treasury.gov; Mohler, Hallock CAPT SD <Hallock.Mohler@sd.mil>; Matthew.Whitaker@usdoj.gov; Demi.Yeager@usdoj.gov; awilliams2@doc.gov; WTeramoto@doc.gov; ruth.knouse@dot.gov; geoff.burr@dot.gov; tom.cremins-1@nasa.gov; susanmb3@dni.gov; Scott_Hommel@ios.doi.gov; juliette_lillie@ios.doi.gov; Heldi.green@osec.usda.gov; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Smith, Wayne D <Wayne.Smith@hq.doe.gov>; christina.bobb@hq.dhs.gov;



AMERICAN OVERSIGHT

chad.wolf@hq.dhs.gov
**Cc:** Staff Secretary (b) (6) ; dredl@ntia.doc.gov; patkins@ntia.doc.gov; dkhlopin@ntia.doc.gov; Rachael.bender@fcc.gov; Donald.stockdale@fcc.gov
**Subject:** FOR REVIEW: (b) (5)

Attached please find a draft Presidential policy decision on developing a (b) (5) for America's future.

Affirmative clearance requested from: **State, DoD, DHS, DoJ, DoC, DoT, and NASA.** All other components are invited to comment, but affirmative clearance is not required.

Please send comments to Staff Sec by **10 AM Thursday, May 31.**

Thank you,

Staff Sec



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:11 AM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Cc:** Hynes, Shaylyn;Wallwork, Luke
**Subject:** FW: Q&A
**Attachments:** s1cyber qandas.docx

**Importance:** High

Looping in DW.

---

**From:** Hynes, Shaylyn
**Sent:** Thursday, May 31, 2018 8:09 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Subject:** FW: Q&A
**Importance:** High

Hi- Just let us know whenever this is ok to send to the boss.

The moderator now also has his remarks as prepared to guide him. Should be pretty straightforward.

Thanks!

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 10:34 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>, Storch, Thomas <Thomas.Storch@hq.doe.gov>, Wallwork, Lnke <Luke.Wallwork@hq.doe.gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>
**Subject:** Q&A

Sorry for the delay. I've had major computer/email issues today and this evening.

These are just some of the initial thoughts/questions based on the call today with WSJ's Bradley Olson (the moderator). (b) (5)

Brian-Let me know whenever these are good to send to the boss..Hopefully he can review before or after the call in the morning.

Thomas-(b) (5)

Let me know if you all have any questions.



AMERICAN OVERSIGHT

Thanks!



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:18 AM
**To:** Hommel, Scott (scott_hommel@ios.doi.gov)
**Subject:** Question on Rare Earth Elements

Scott, I think DOI leads the interagency working group on this. If that's correct who is the lead person?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 7:06 AM
**To:** McGinley, William J. EOP/WHO
**Subject:** FW: THE HILL: Watchdog clears Perry's use of non-commercial flights, but advises policy change

Report was on non-commercial travel only...

# THE HILL: Watchdog clears Perry's use of non-commercial flights, but advises policy change

**0**

Energy Secretary Rick Perry follows all relevant policies and laws when he used charter or military aircraft for five flights last year, the Department of Energy's (DOE) internal watchdog found.

The DOE's Office of Inspector General (OIG) said in a Friday report that DOE "had not developed formal policies and procedures to justify and approve" the use of non-commercial aircraft for official travel, and investigators recommended that the department write such policies.

But otherwise, Perry followed the law and general policies from the White House's Office of Management and Budget, the report concluded. It also looked at four more trips on non-commercial aircraft by political employees in 2016, under the Obama administration.

"Although we did not find any instances where inappropriate trips were taken on Government aircraft, the suggested improvements should reduce the risk that Government aircraft is authorized in the future without appropriate justification and help ensure transparency in the Department's travel processes," April Stephenson, the deputy assistant inspector general, wrote to Perry.

Numerous Trump administration officials have been under scrutiny for using charter or military aircraft or first-class travel on the taxpayers' dime in cases where it might not have been necessary, including former Health and Human Services Secretary Price resigned under pressure last year due to his charter flights, and Veterans Affairs Secretary David Shulkin was forced out earlier this year over objections to his taxpayer-funded travel expenses.

DOE welcomed the Friday report.

"The Department has always believed that there has been no misuse of government aircraft by Secretary Perry and DOE staff. We appreciate the Inspector General's review which found nothing improper about the few instances where Secretary Perry and DOE staff have utilized non-commercial travel," said spokeswoman Shaylyn Hynes.



AMERICAN OVERSIGHT

Democrats on the House Energy and Commerce Committee, led by Rep. Frank Pallone (D-N.J.), had requested the OIG inquiry.

The OIG's report found that Perry used government planes owned by the Federal Aviation Administration or Defense Department on four trips last year at DOE's expense, and used a charter plane on one trip.

Each time, the uses were approved by the appropriate individuals at DOE, and were sufficiently justified due to scheduling, costs or other reasons.

Investigators said that DOE did not have policies implementing government-wide standards for documenting compliance with the rules, but labeled that as an "administrative issue."

"We did not find any indication that the trips reviewed were inappropriate."

Perry has defended the trips, and the use of non-commercial aircraft, as appropriate, given the needs of the department.

"I'm going to continue to do my job. I'm going to make the commitment to you that I'm going to try to do it in the most thoughtful and the most reasonable way to do that, but realizing that, from time to time, if I'm going to be in those places, and we're going to be there in a timely fashion, we may have to do it in a way that does expend some taxpayers' dollars," he told House lawmakers in October.

He added to the House panel that he usually chooses Southwest or United Airlines for his official travel.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 7:12 AM
**To:** Varnasidis, Sophia
**Subject:** FW: Good to talk with you earlier in the week
**Attachments:** On page Executive summary - 1366.docx

Please see request below.

---

**From:** Lehman, Rob <Rob.Lehman@wilmerhale.com>
**Date:** Thursday, May 31, 2018, 10:10 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Good to talk with you earlier in the week

Any chance you can help with this request? Thank you for considering.

---

**From:** Lehman, Rob
**Sent:** Friday, May 25, 2018 4:12 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Good to talk with you earlier in the week

Brian,

Here is a one pager on the issue we discussed. If there is any way you could help possibly get Mark Menezes or other possible senior DOE to meet with the company representatives that would be incredibly helpful. Here are the dates they are available, anytime May 30, May 31 or June 1, also the afternoon June 4, June 5 anytime June 6.

Thanks again and I hope you have a great Memorial Day.

Rob

**Rob Lehman | WilmerHale**
Senior Public Policy Advisor
1875 Pennsylvania Avenue NW
Washington, DC 20006 USA
+1 202 663 6907 (t)
+1 202 663 6363 (f)
rob.lehman@wilmerhale.com

**Please consider the environment before printing this email.**

This email message and any attachments are being sent by Wilmer Cutler Pickering Hale and Dorr LLP, are confidential, and may be privileged. If you are not the intended recipient, please notify us immediately—by replying to this message or by sending an email to postmaster@wilmerhale.com—and destroy all copies of this message and any attachments. Thank you.

For more information about WilmerHale, please visit us at http://www.wilmerhale.com.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 8:13 AM
**To:** Turenne, William
**Subject:** FW: layered maps
**Attachments:** IHS Markit April 2018--Ensuring_resilient_and_efficient_PJM_electricity_....pdf

Per convo

---

**From:** Menezes, Mark
**Sent:** Wednesday, May 30, 2018 5:25 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Cade, Steven <Steven.Cade@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** layered maps

Links to maps to overlay:
EIA:
https://www.eia.gov/state/maps.php?v=Electricity

Use this link to go to EIA's website displaying an interactive map of energy infrastructure. Using the Layers/Legend tool in upper right hand corner, delete all that is checked then layer in what you want to see--nat gas pipelines, then coal, then nukes. Right click on each and key information will pop up. Ideally, we would be able to modify this to our needs.

NERC report:
https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf

See map on page 17.

For closed and announced closure of nukes, see page 23 of attachment.

Mark W. Menezes
Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
Tel: (202) 586-8808






AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 8:26 AM
**To:** Colgary, James
**Cc:** Menezes, Mark
**Subject:** FYI

Jim,

(b) (5)

This will be unclass.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 9:59 AM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** FW: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Varnasidis, Sophia
Sent: Thursday, May 31, 2018 12:57 PM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
Subject: RE: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Thursday, May 31, 2018 11:26 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: FW: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Mendoza, Jennifer
Sent: Thursday, May 31, 2018 11:17 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>; Wetzel, Jonathan <Jonathan.Wetzel@hq.doe.gov>
Subject: Detail for (b) (6)

Hi,

(b) (6)

Jennifer Mendoza
Office of Corporate Executive Management
Office of the Chief Human Capital Officer
U.S. Department of Energy
Forrestal Building, 4E-084
Jennifer.Mendoza@hq.doe.gov | 202.586.7056



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:00 AM
**To:** Winberg, Steven;Maddox, Mark;Storch, Thomas;Haus, Bob;Turenne, William;Habansky, Sarah;Hynes, Shaylyn
**Subject:** FW: World Gas Conference

fyi

-----Original Message-----
From: Mocarski, Ashley D. EOP/WHO [mailto:(b) (6)
Sent: Thursday, May 31, 2018 12:01 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: World Gas Conference

(b) (5)

-----Original Message-----
From: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Sent: Thursday, May 31, 2018 11:11 AM
To: Mocarski, Ashley D. EOP/WHO <(b) (6) >
Subject: World Gas Conference

Ashley-

The WGC is being held here in DC the last week of June. (b) (5)

Thanks.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:11 AM
**To:** Little, Douglas
**Subject:** how was yesterday?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:21 AM
**To:** Uddo, Joe;Colgary, James;Varnasidis, Sophia;Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** RE: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Thursday, May 31, 2018 11:26 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: FW: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Mendoza, Jennifer
Sent: Thursday, May 31, 2018 11:17 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>; Wetzel, Jonathan <Jonathan.Wetzel@hq.doe.gov>
Subject: Detail for (b) (6)

Hi,
(b) (6)

Jennifer Mendoza
Office of Corporate Executive Management
Office of the Chief Human Capital Officer
U.S. Department of Energy
Forrestal Building, 4E-084
Jennifer.Mendoza@hq.doe.gov | 202.586.7056



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:37 AM
**To:** Riggs, Charlotte R. EOP/WHO
**Cc:** Mocarski, Ashley D. EOP/WHO;Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** RE: FEMA Briefing

Secretary Perry will be there.

---

**From:** Riggs, Charlotte R. EOP/WHO [mailto: (b) (6) ]
**Sent:** Thursday, May 31, 2018 12:18 PM
**To:** Riggs, Charlotte R. EOP/WHO (b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) >
**Subject:** RE: FEMA Briefing

Good afternoon all,

I am emailing to **confirm** this hold for FEMA. If you have not already, please RSVP on behalf of your principal ASAP.

Thank you,
Charlotte

Charlotte Riggs
Office of Cabinet Affairs
The White House
M: (b) (6)

---

**From:** Riggs, Charlotte R. EOP/WHO
**Sent:** Tuesday, May 29, 2018 2:32 PM
**To:** Riggs, Charlotte R. EOP/WHO <(b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) >
**Subject:** FEMA Briefing

Hi all,

Cabinet Affairs kindly requests you hold June 6, 2018 from 2:00PM – 3:00PM for your principals attendance at the FEMA Briefing. This will take place at FEMA HQ.

Please standby for an APA.

Thank you,
Charlotte

Charlotte Riggs
Office of Cabinet Affairs
The White House
M: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:48 AM
**To:** Fibbe, George
**Subject:** RE: you in/around?

Give a call at your convenience.

-----Original Message-----
From: Fibbe, George
Sent: Thursday, May 31, 2018 1:39 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: you in/around?

Yes

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

-----Original Message-----
From: McCormack, Brian
Sent: Thursday, May 31, 2018 1:39 PM
To: Fibbe, George <George.Fibbe@hq.doe.gov>
Subject: you in/around?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 11:08 AM
**To:** Jewell, Matthew
**Subject:** RE: Farewell

Matt,

It has been great to have you part of the DOE team. (b) (6)

Best,
Brian

-----Original Message-----
From: Jewell, Matthew
Sent: Thursday, May 31, 2018 1:54 PM
To: Jewell, Matthew <Matthew.Jewell@hq.doe.gov>
Subject: Farewell

All,

As you may have already heard, tomorrow will be my last day at the Department of Energy.

(b) (6)

Wishing you all the best,

Matthew L. Jewell
Legislative Affairs Advisor
U.S. Department of Energy
Work: 202-586-5220
Matthew.Jewell@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 11:54 AM
**To:** Turenne, William
**Subject:** RE: layered maps

(b) (5)

---

**From:** Turenne, William
**Sent:** Thursday, May 31, 2018 2:38 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: layered maps

(b) (5)

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 1:10 PM
**To:** Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** RE: layered maps

Ok. Anything to report?

---

**From:** Turenne, William
**Sent:** Thursday, May 31, 2018 11:29 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: layered maps

Thanks. I connected with Cade after we spoke.

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 11:12 AM
**To:** Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** FW: layered maps

Per convo

---

**From:** Menezes, Mark
**Sent:** Wednesday, May 30, 2018 5:25 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Cade, Steven <Steven.Cade@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** layered maps

Links to maps to overlay:



AMERICAN OVERSIGHT

EIA:
https://www.eia.gov/state/maps.php?v=Electricity

Use this link to go to EIA's website displaying an interactive map of energy infrastructure. Using the Layers/Legend tool in upper right hand corner, delete all that is checked then layer in what you want to see--nat gas pipelines, then coal, then nukes. Right click on each and key information will pop up. Ideally, we would be able to modify this to our needs.

NERC report:
https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf

See map on page 17.

For closed and announced closure of nukes, see page 23 of attachment.

Mark W. Menezes
Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
Tel: (202) 586-8808

U.S. DEPARTMENT OF ENERGY



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Kyle Yunaska |
| **Location:** | Manhattan Project Conference Room |
| **Start:** | Thu 5/31/2018 12:00 PM |
| **End:** | Thu 5/31/2018 12:30 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Kyle Yunaska (kyle.yunaska@hq.doe.gov) |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 12:51 PM
**To:** Dabbar, Paul;Brouillette, Dan;Wilmot, Dan
**Cc:** Gordon-Hagerty, Lisa;Menezes, Mark;Colgary, James;Ellis, Kristen;Cubbage, Thomas;Vonglis, John G.;Burnison, Melissa
**Subject:** RE: Alaska debrief summary

Thank you, sir. This is very helpful. Adding in Melissa for awareness.

---

**From:** Dabbar, Paul
**Sent:** Thursday, May 31, 2018 3:33 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Cc:** Gordon-Hagerty, Lisa <Lisa.Gordon-Hagerty@nnsa.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Ellis, Kristen <Kristen.Ellis@em.doe.gov>; Cubbage, Thomas <Thomas.Cubbage@hq.doe.gov>; Vonglis, John G. <John.Vonglis@hq.doe.gov>
**Subject:** Alaska debrief summary

Deputy Secretary, Brian and Dan

I hope all is well.

We just completed the lab day set events with Senator Murkowski, and it turned out very well. She was very complementary of the very large turn out from the DOE complex.

We had 7 Lab Directors there from all three programs (SC, NNSA and Applied) as well as Assistant LD's from another 5 Labs. As well as Fall, Walker, and Simmons (and many others from the Department)

We had a number of specific take aways we reviewed with the Senator after the events which I will list below

(b) (5)

Specific takeaways from the event as discussed with the Senator:

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

Many thanks

Paul

Paul M. Dabbar | Under Secretary for Science | U.S. Department of Energy |
James V. Forrestal Building | Department of Energy Headquarters |
1000 Independence Ave, S.W., Washington D.C. 20585 USA |

Executive Assistant: Sabrina Smith | T: +1 202 586 5784 | Sabrina.Smith@em.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 12:52 PM
**To:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** FW: Summit Invitation
**Attachments:** Secretary Rick Perry.pdf; 2018 SUMMIT DRAFT AGENDA.pdf; PANEL 1 BRIEF SUMMARY AND QUESTIONS...pdf; THE PURPOSE OF THE SUMMIT.pdf

**From:** Clive Walker [mailto:clivewalker@trandersol.com]
**Sent:** Thursday, May 31, 2018 3:28 PM
**To:** Secretary Perry <The.Secretary@hq.doe.gov>
**Cc:** Allison Adams <allisonadams@trandersol.com>; Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Summit Invitation

May 31, 2018

Via Email:

The Honorable Rick Perry, Secretary
U.S. Department of Energy
1000 Independence Ave. SW
Washington DC 20585

Dear Secretary Perry:

Thank you for the opportunity to contact you regarding, the Eight-Dimensional economic Recovery Plan, ("EDERP" or "the Plan") for the United States. I am writing to you to invite you to be a guests speaker at the upcoming National Infrastructure Investment and Builder's Summit, that is scheduled for September 27, 2018. The summit is scheduled to be held at Rayburn House Office Building in Washington D.C.

The summit is being held to showcase the Eight-Dimensions of the Plan for the United States, and to bring together our leaders from the Legislative and Executive branch of government, governors from all states and selected public and private sector companies to view the innovative solutions that have been carefully crafted to be authorized and implemented in all 50 states and territories. Please see the attached formal invitation, draft program agenda, outline of information and the purpose of the summit for your review and consideration.

Thank you.

Very truly yours,
Clive Walker, CEO
clivewalker@trandersol.com
www.trandersol.com

Let's come together! Let's build – It's time.



AMERICAN OVERSIGHT

Clive V. Walker
Chief Executive Officer
TRANDERSOL, LLC
*Tronscending Energy Solutions™*
Phone: 954-347-8759
Address: 500 East Broward Boulevard. Suite 1710.
Fort Lauderdale, Florida 33394



****Confidentiality and Use Notice****

The information contained in this transmission contains confidential information. (Including any attachments). The information is the property of the sender and intended only for use by the individual or entity named above. The recipient of this information is prohibited from disclosing the contents of the information to another party.

If you are neither the intended recipient or the employee or agent responsible for delivery to the intended recipient, you are hereby notified that disclosure of contents in any manner is strictly prohibited. If you have received this information in error, please notify the sender immediately and arrange for the return or destruction of these documents. The receipt of the information contained in this document or its attachments must be used in accordance with the agreement between both parties and therefore does not constitute a right of recipient's and/or the property of the recipients.
Copyright© 1996-2018 TRANDERSOL, LLC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 12:52 PM
**To:** Szymanski, Jessica
**Subject:** RE: Talking points

obe

---

**From:** Szymanski, Jessica
**Sent:** Thursday, May 31, 2018 3:46 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Talking points
**Importance:** High

Hey Brian – are you looking for these talking points? Happy to help if you are, just figured I'd cut out all the middle men.

---

**From:** Ktenas, Bianca
**Sent:** Thursday, May 31, 2018 3:43 PM
**To:** Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>
**Cc:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Subject:** FW: Talking points
**Importance:** High

Do you know where this would be? Speech folder maybe?

---

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:49 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Ktenas, Bianca <Bianca.Ktenas@hq.doe.gov>
**Cc:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>, Matheney, Doug <Doug.Matheney@hq.doe.gov>, Maddox, Mark <MRMaddox@hq.doe.gov>, Theisz, David <David.Theisz@hq.doe.gov>
**Subject:** FW: Talking points

Hi Shaylyn and Bianca,

Please see below for a quick-turn request. I received Bob Haus' out of office that noted you as contacts in his absence.

If you could help, it would be greatly appreciated. I'm betting, hoping, that you may have materials at hand.

Thank you!

Kimberly D. Rasar
Deputy Assistant Secretary for Operations
Office of Fossil Energy
U.S. Department of Energy
(202) 586-4100



AMERICAN OVERSIGHT

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:43 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>
**Cc:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>, Theisz, David <David.Theisz@hq.doe.gov>, Maddox, Mark <MRMaddox@hq.doe.gov>, Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** FW: Talking points

Hi Bob,

Do you have talking points that S1 or S2 have used for a high level DOE Overview? Sorry for the short notice, but they are needed by very early a.m. for Brian McCormick who is talking for 20-30 minutes at the Mickey Leland event. I just got the request this evening. See below.

Let me know.

Thank you!

-Kimberly

---

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:17 PM
**To:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>
**Cc:** Theisz, David <David.Theisz@hq.doe.gov>, Perry, Alan F. <ALAN.PERRY@hq.doe.gov>
**Subject:** FW: Talking points

Gayland,

Could you reach out to PA and get very high level takers for a Department Overview that S1 or S2 may have used? This is a really quick turn. We need to provide this by 7:30 a.m. if possible.

-Kimberly

---

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:14 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>, Perry, Alan F. <ALAN.PERRY@hq.doe.gov>
**Subject:** RE: Talking points

Doug,

I just got this. No worries. (b) (6)
I will have something by very early a.m.

-Kimberly

---

**From:** Matheney, Doug <Doug.Matheney@hq.doe.gov>



AMERICAN OVERSIGHT

**Date:** Wednesday, May 30, 2018, 5:40 PM
**To:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Subject:** Talking points

Kimberly I hate to bother you but McCormick would like some talking points this evening that I can send to him for his speech tomorrow if you could get that to me a soon as possible that would be greatly appreciated.

Thank you

Doug



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 1:24 PM
**To:** Doug Davenport
**Cc:** Assafe, Yordanos
**Subject:** RE: Connecting

Yordanos- please arrange.

-----Original Message-----
From: Doug Davenport [mailto:(b) (6)
Sent: Thursday, May 31, 2018 4:23 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: Connecting

Hey Brian,

Any chance you might have 10 minutes for a quick call tomorrow?

Know you are busy, but I have an issue that I think is right up your/DOE's ally....

Let me know.....Thanks, man.....Doug



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 1:42 PM
**To:** Sneed, Michelle
**Cc:** Elfers, Kristen
**Subject:** RE: Manana

(b) (6)

---

**From:** Sneed, Michelle
**Sent:** Thursday, May 31, 2018 4:37 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Elfers, Kristen <Kristen.Elfers@hq.doe.gov>
**Subject:** Manana

Brian,
(b) (6)



AMERICAN OVERSIGHT

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:34 PM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** FW: (b) (6), (b) (7)(C)

**From:** (b) (6), (b) (7)(C)
**Sent:** Thursday, May 31, 2018 5:10 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** (b) (6), (b) (7)(C) Hanson, Deborah K <debby.hanson@pnnl.gov>
**Subject:** (b) (6), (b) (7)(C)

Brian,

(b) (6), (b) (7)(C)

Appreciate the help. Best,

(b) (6), (b) (7)(C)

U.S. Department of Energy
1000 Independence Ave.
Washington, DC 20585
Counterintelligence Website http://in.doe.gov//
(b) (6), (b) (7)(C)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:36 PM
**To:** Bruce Fogerty;Assafe, Yordanos
**Subject:** next Wednesday

Yordanos,

Need to discuss 30 mins for Bruce on Wed. See me tomorrow.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:37 PM
**To:** Prochaska, Conner H.;Wilmot, Dan
**Subject:** RE: NASA ARPA-E iTech

What is the coordination, if any, with OSTP and VP's office (he has big NASA focus? Are you using the COMPETES ACT for any of this?

---

**From:** Prochaska, Conner H.
**Sent:** Thursday, May 31, 2018 5:35 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** NASA ARPA-E iTech

Brian & Dan,

Please let me know if anyone from the front office is interested in attending.

ARPA-E has partnered with NASA on an ideation competition NASA operates called iTech. iTech encourages U.S. entrepreneurs and researchers to submit their technology concepts to solve key challenges. For this cycle, iTech is seeking concepts for transformational energy technologies that could both improve space exploration and life on Earth.

The competition will culminate in the 2018 NASA iTech Energy Forum, which will take place June 13-14 at Citigroup global headquarters in New York City, NY. At this event, the top 10 iTech finalists will pitch their concepts and receive coaching from a select group of investors and government leaders. Additionally, the Forum will include panel discussions and keynotes from leaders in energy innovation and investment.

On Wednesday, June 13, the Forum will host a dinner featuring guest speakers, including the CEO of Citigroup Michael Corbat & Undersecretary Dabbar.

Sincerely,
Conner

Conner Prochaska
Senior Advisor and Chief of Staff
Advanced Research Projects Agency
Department of Energy
Office: (202) 586-1916
Cell: (b) (6)
Email: Conner.Prochaska@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:56 PM
**To:** Dabbar, Paul;Wilmot, Dan;Habansky, Sarah;Almstead, Deidre;Gerdes, Stan
**Subject:** RE: 6.1-6.12

Sounds good. Will have ScHeduling get pre brief time set and copying Sarah to pull any IG reports

Thanks!

---

**From:** Dabbar, Paul <Paul.Dabbar@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 5:53 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: 6.1-6.12

Brian, Dan

Hope all is well.

(b) (5)

Thanks

Paul

Paul M. Dabbar | Under Secretary for Science | U.S. Department of Energy |
James V. Forrestal Building | Department of Energy Headquarters |
1000 Independence Ave, S.W., Washington D.C. 20585 USA |



AMERICAN OVERSIGHT

Executive Assistant: Sabrina Smith | T: +1 202 586 5784 | Sabrina.Smith@em.doe.gov

---

**From:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 2:16 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Cc:** Colgary, James <James.Colgary@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, Haddad, Zead <Zead.Haddad@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Smith, Wayne D <Wayne.Smith@hq.doe.gov>, Muniz, Dan <Dan.Muniz@hq.doe.gov>, Chase, Keith <Keith.Chase@hq.doe.gov>, Bogle, James <James.Bogle@Hq.Doe.Gov>, Bobo, Fitzgerald <Fitzgerald.Bobo@hq.doe.gov>, Patterson, Donald <Donald.Patterson@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, Dabbar, Paul <Paul.Dabbar@hq.doe.gov>, Burnison, Melissa <Melissa.Burnison@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Gordon-Hagerty, Lisa <Lisa.Gordon-Hagerty@nnsa.doe.gov>, Naughton, Janet <Janet.Naughton@hq.doe.gov>, Travis, Owen <Owen.Travis@NNSA.DOE.Gov>
**Subject:** 6.1-6.12

Attached is the schedule the two week schedule- thanks!

Deidre



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 3:07 PM
**To:** Alexander.Gates@doe.gov
**Subject:** Awaiting your return phone call

Alex,

Checking on when I can expect your return phone call. BTW, your voicemail box is full.

Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 3:08 PM
**To:** Fitzsimmons, Alexander;Szymanski, Jessica;Wilmot, Dan;Hynes, Shaylyn;Turenne, William;Kinney, Sara;Habansky, Sarah;Simmons, Daniel
**Subject:** RE: Solar Prize Press Release

Thanks. And the part I was agreeing on was to Dan's point about including newsworthy items in the 30 day report.

---

**From:** Fitzsimmons, Alexander
**Sent:** Thursday, May 31, 2018 6:01 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** RE: Solar Prize Press Release

We'll work with Yordanos to find time to discuss.

---

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:59 PM
**To:** Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>; Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** RE: Solar Prize Press Release

Agree on that.

Daniel and Alex- need to discuss how this fits into ongoing solar trade issues.

---

**From:** Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 2:42 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Kinney, Sara <Sara.Kinney@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>, Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** Solar Prize Press Release

All,

EERE has finalized the rules for their Solar Prize competition and would like us to send out the attached draft release from DOE this coming Tuesday, June 5th. It includes a quote from S1 as well as Abby Hopper, President of SEIA.

I know the WH has interest in this competition so we'll be sure to flag for WH Coms. If any more coordination should be done on that front let us know.



AMERICAN OVERSIGHT

If anyone has any edits or concerns also let us know.

Thank you!
Jess



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 6:43 PM
**To:** McGinley, EOP/WHO
**Subject:** FW: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

FYI.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 9:42 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO <(b) (6) >
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

+raj on this reply. Thanks!

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 8:41 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

---

**From:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Date:** Thursday, May 31, 2018, 8:39 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

Thanks!

Sent from my iPhone



AMERICAN OVERSIGHT

On May 31, 2018, at 9:26 PM, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov> wrote:

*priveleged and confidential*

Sarah,

(b) (5)

(b) (5)

(b) (5)

Happy to discuss further if you have any questions.

Thanks,
Shaylyn

(b) (5)

= = =

---

**From:** Jennifer A. Dlouhy (BLOOMBERG/ NEWSROOM:) <jdlouhy1@bloomberg.net>
**Date:** Thursday, May 31, 2018, 6:45 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** comment sought re NSC meeting tomorrow, DOE action under FPA and DPA



AMERICAN OVERSIGHT

Shaylyn, I have a document making the case for and describing a planned DOE directive that would order the purchase of electricity or electric generation capacity from designated, at-risk power plants and establish a "Strategic Electric Generation Reserve" with the aim of promoting the national defense and maximizing domestic energy supplies.

There is an NSC meeting to discuss the intervention tomorrow. The idea is for this intervention to cover two years while DOE looks at other ways to address grid security challenges.

Do you wish to respond to this?

Thanks,
Jen.

---

---
Jennifer A. Dlouhy
jdlouhy1@bloomberg.net / (b) (6)
(b) (6)
Desk: 202.807.2159
Cell/Text/Signal: (b) (6)
Twitter: @jendlouhyhc
Stories: >http://bloom.bg/23Crpvk<



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 7:16 PM
**To:** Griffith, Preston W. EOP/NSC
**Subject:** FW: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

---

**From:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 10:10 PM
**To:** Ricardel, Mira R. EOP/WHO <(b) (6) >
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Sanders, Sarah H. EOP/(b) (5)
McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO <(b) (6) >, Tinsley, Sarah EOP/NSC <(b) (6)
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

Thanks, Mira. I think Bloomberg may have just posted a story.

---

**From:** Ricardel, Mira R. EOP/WHO <(b) (6) >
**Date:** Thursday, May 31, 2018, 10:08 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Sanders, Sarah H. EOP/WHO <(b) (6) >,
McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO <(b) (6) >, Tinsley, Sarah EOP/NSC (b) (6)
**Subject:** Re: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

Sent from my iPhone

On May 31, 2018, at 10:05 PM, Brouillette, Dan <Dan.Brouillette@hq.doe.gov> wrote:

Thanks, Shaylyn. (b) (5)

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 9:42 PM
**To:** Sanders, Sarah H. EOP/WHO (b) (6)



AMERICAN OVERSIGHT

**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO (b) (6)
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

+raj on this reply. Thanks!

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 8:41 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

---

**From:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Date:** Thursday, May 31, 2018, 8:39 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

Thanks!

Sent from my iPhone

On May 31, 2018, at 9:26 PM, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov> wrote:

> *priveleged and confidential*
>
> Sarah,
>
> (b) (5)
>
> (b) (5)

(b)



AMERICAN OVERSIGHT

(b) (5)

Happy to discuss further if you have any questions.

Thanks,
Shaylyn

(b) (5)

= = =

---

**From:** Jennifer A. Dlouhy (BLOOMBERG/ NEWSROOM:) <jdlouhy1@bloomberg.net>
**Date:** Thursday, May 31, 2018, 6:45 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

Shaylyn, I have a document making the case for and describing a planned DOE directive that would order the purchase of electricity or electric generation capacity from designated, at-risk power plants and establish a "Strategic Electric Generation Reserve" with the aim of promoting the national defense and maximizing domestic energy supplies.

There is an NSC meeting to discuss the intervention tomorrow. The idea is for this intervention to cover two years while DOE looks at other ways to address grid security challenges.

Do you wish to respond to this?



AMERICAN OVERSIGHT

Thanks,
Jen.

---

Jennifer A. Dlouhy
jdlouhy1@bloomberg.net / (b) (6)

Desk: 202.807.2159
Cell/Text/Signal: (b) (6)
Twitter: @jendlouhyhc
Stories: >>http://bloom.bg/23Crpvk<<



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 2:59 AM
**To:** Brooke, Francis J. EOP/WHO
**Subject:** FW: Morning Energy, presented by America's Pledge: Oversight keeps up Pruitt probe — Report: Administration plans to order grid operators to bail out coal, nuke plants — Bishop breaks it down

Making sure you saw.

---

**From:** POLITICO Pro Energy <politicoemail@politicopro.com>
**Date:** Friday, Jun 01, 2018, 5:44 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Morning Energy, presented by America's Pledge: Oversight keeps up Pruitt probe — Report: Administration plans to order grid operators to bail out coal, nuke plants — Bishop breaks it down

By Kelsey Tamborrino | 06/01/2018 05:43 AM EDT

*With help from Anthony Adragna, Eric Wolff, Alex Guillén, Emily Holden and Darius Dixon*

**REPORT: TRUMP ADMINISTRATION PLANS TO ORDER GRID OPERATORS TO BAIL OUT COAL, NUKE PLANTS:** In an unprecedented move that's guaranteed to draw blowback, the Trump administration is planning to order U.S. grid operators to purchase electricity or generating capacity from struggling coal and nuclear power plants in a bid to prevent them from closing, Bloomberg's Jennifer Dlouhy reported late last night. According to a draft memo the news service obtained ahead of a National Security Council meeting on the topic today, the administration calls federal action "necessary to stop the further premature retirements of fuel-secure generation capacity." The 41-page document outlines a plan for the Energy Department to direct operators to buy the electricity from plants at risk of retirement — an unprecedented intervention by the government into U.S. energy markets, but one that is in line with President Donald Trump's desire to bolster the shrinking coal sector. Bloomberg reports the government would also establish a "Strategic Electric Generation Reserve" with the aim of promoting national defense and maximizing domestic energy supplies.

"**Too many of these fuel-secure plants** have retired prematurely and many more have recently announced retirement," only to be replaced by less-secure and less-resilient natural gas and renewable power sources, the memo, dated May 29 and distributed Thursday, said. The document describes a planned Energy Department directive, Bloomberg says, but there was no indication whether the president had signed off on the action nor when any order might be issued. POLITICO previously reported the NSC was taking the lead on determining whether the federal government should bail out struggling power plants. Read more.

**OVERSIGHT, NOT OUT OF MIND:** The House Oversight Committee is pressing ahead with its probe into EPA Administrator Scott Pruitt's ethics controversies and lavish spending. Pro's Anthony Adragna reports the committee has scheduled interviews for this month with Pruitt's chief of staff Ryan Jackson and his former top policy adviser, Samantha Dravis, according to a committee aide. The committee has already sat down with



AMERICAN OVERSIGHT

Pruitt's former security chief Pasquale "Nino" Perrotta, scheduler Millan Hupp and senior EPA counsel Sarah Greenwalt.

**The committee, chaired by Rep. Trey Gowdy,** is still in the process of scheduling an interview with Kevin Chmielewski, a former deputy chief of staff turned whistleblower. The aide said committee staff has been in touch with Chmielewski, who was already informally interviewed once before, and are trying to schedule a date for a transcribed session.

**Congressional Democrats, meanwhile, say they aren't worried** about keeping up the pressure on Pruitt. "This is a gift that keeps on giving and there are plenty of other people stepping forward and giving information to us," Sen. Tom Carper said last week. "He gives us new information, new things to explore all the time. I have a feeling he's going to continue doing that." Still, Democratic aides tell Anthony they're exploring new oversight options on Pruitt's use of extensive security on trips, his legal defense fund and the decision to list an Orange County Superfund site after a meeting requested by conservative radio and television host Hugh Hewitt.

**Even though the Oversight panel** and the EPA inspector general aren't expected to release their results for some time, Democrats tell Anthony they remain confident additional revelations will prove damning. Read more.

**HAPPY FRIDAY!** I'm your host Kelsey Tamborrino. McGinn Public Strategies' Joe McGinn was the first to correctly name the three presidents who got married while in office: Woodrow Wilson, John Tyler and Grover Cleveland. For today: Name the first president-vice president pair to serve together without military experience. Send your tips, energy gossip and comments to ktamborrino@politico.com, or follow us on Twitter @kelseytam, @Morning_Energy and @POLITICOPro.

*Pro subscribers: Are you getting all the content you want? Make sure your keywords are up to date and customized via your settings page at http://politico.pro/1iDALk9.*

**Register for the Pro Summit:** Join Pro subscribers, expert reporters and key decision-makers from the executive branch, federal agencies and Congress for a full day of incisive policy conversations on July 17. Learn more.

**BISHOP BREAKS IT DOWN:** House Natural Resources Chairman Rob Bishop has some thoughts about the inner workings of Congress, and the lawmaker from Utah laid them out for Anthony in a one-on-one interview here. Some takeaways:

— **On the filibuster:** "It doesn't matter who is majority and who is minority. They will never do anything because of the procedure. Personally, I'd like to get rid of the entire filibuster. I don't think it has any value whatsoever anymore."

— **On the role of outsiders:** "The biggest problem with just having someone come here for the first time is that you think this is the way it's supposed to be done. Those who have experience on state and local governments know there is another way of doing the job. That's why they become the biggest voices for reform back here."

— **One the House Freedom Caucus:** "I really think the Freedom Caucus is a response to the inability of getting things done because we have made it so procedurally difficult to accomplish the task."

— **On why he's the lone House lawmaker not to tweet:** "I don't think communication is enhanced by Twitter. When you do everything to be snarky and small — and you have to come up with something that's fast and biting — that's cute but it doesn't really enhance communication." He also notes, as a former history and



AMERICAN OVERSIGHT

grammar teacher, that: "I believe in words." **ME's thought:** It's ironic since Bishop has some of the best one-liners in Congress and is quite funny.

**SAB VOTES FOR REVIEW** : EPA's Science Advisory Board reconvenes for its second day of meetings today, and already its members have voted to conduct reviews of five of Pruitt's biggest regulatory rollbacks, as well as his science "transparency" proposal, Pro's Alex Guillén reports. The highly unusual move Thursday came after EPA declined to answer in any detail the initial questions from SAB members about how the agency ensured its proposals to undo the Obama EPA's rules were based on sound science. The five proposed rules SAB voted to review further include the Clean Power Plan, a carbon emissions rule for future power plants, a methane rule for new oil and gas well, emissions standards for 2022-2025 model cars, and a rule limiting emissions from "glider" trucks. More here.

**For his part, Pruitt wasn't present** at Thursday's meeting. When asked why, an agency spokesperson told ME the administrator was in Mississippi. Pruitt later tweeted from the state announcing water quality and crop production grants.

**EMISSIONS RULE MOVES FORWARD:** Bill Charmley, director of EPA's Assessment and Standards Division, confirmed to SAB on Thursday that the agency sent its proposal to roll back greenhouse gas emissions rules for vehicles to the White House Office of Management and Budget. The move kicks into gear an interagency review process and sets up what will likely be a contentious legal fight with California, which has authority to set its own greenhouse gas limits on tailpipe emissions. The New York Times reported earlier Thursday the rule would not revoke California's waiver outright, but would instead preempt the matter by saying the state can't use the waiver to require tougher standards than those set by the federal government. Bloomberg, however, reported via a source familiar with the matter that the administration's proposal would in fact rescind the waiver.

** **A message from America's Pledge:** America's Pledge is flipping the script on climate action. One year after the federal government announced it would pull out of the Paris Agreement, 2,700+ U.S. cities, states, and businesses are saying, "We Are Still In." See how far we've come: https://politi.co/2koAHZb **

**ONE YEAR LATER:** A year after Trump vowed to withdraw from the worldwide Paris climate agreement, Americans' planet-warming carbon emissions continue to decline, but at a slower rate than before, according to the most recent estimates available. Reductions are coming mostly from the power sector, and the Trump administration is not pursuing efforts to lower growing emissions from transportation, industry or buildings. "The Trump Administration, after conducting an interagency policy process, concluded that withdrawing from the Paris Climate Accord was the best decision for the United States and for the American people," White House spokeswoman Lindsay Walters told ME. "One year later, there has been no change in the U.S. position."

**Trump has filled out the upper ranks** of the government with officials who deny mainstream climate science, while the White House has ignored climate findings from its own agencies. Many states, cities and businesses are pledging to keep cutting their greenhouse gas contributions — although initiatives like America's Pledge have not yet quantified how close those entities could contribute to meeting the 2030 goal the U.S. set under the Obama administration.

**Other big emitters, China and India,** appear to be outperforming their own goals, although China's commitment still falls short of a path toward meeting the Paris deal's minimum target of limiting warming to 2 degrees Celsius, according to the independent Climate Action Tracker. Both countries continue to argue that they should get more flexibility since they are still developing, a stance that may be elevated at talks in Poland at the end of the year with the U.S. no longer a leading force at international discussions.



AMERICAN OVERSIGHT

**ALL EYES ON GRASSLEY, ERNST AS PRUITT PUSHES THE RFS ENVELOPE:** Iowa Sens. Chuck Grassley and Joni Ernst have issued a sea of angry statements opposing Pruitt's expanded use of the small refinery waiver from the Renewable Fuel Standard, but with news that Pruitt will now grant retroactive waivers, biofuel watchers are wondering whether the two will lower the boom.

**What may have been the proverbial last straw** for the camel was news reported on Thursday by Reuters that EPA was granting RFS compliance credits to HollyFrontier and Sinclair Oil because they had been denied waivers by Obama's EPA in 2014. The move, which is worth millions of dollars to both companies, makes clear that rather than curtailing the waivers, Pruitt will instead continue to find creative ways to grant them. Grassley, Ernst, and the rest of Gang Grain have been urging EPA to reassign the gallons lost to the waivers to large refiners, and if EPA agrees to that measure, they may be mollified. Reassignment has been the thrust of Agriculture Secretary Sonny Perdue's negotiations with EPA to this point.

**Ernst has been willing to throw her weight around in the past,** forcing Pruitt to issue a letter promising not to reduce biodiesel volumes in exchange for her vote to advance now-Air Administrator Bill Wehrum out of committee. EPA has two nominees awaiting hearings, but Ernst did not mention either of them in a statement issued Thursday. "Administrator Pruitt needs to understand that his actions to continue to grant waivers, now retroactively, to oil refineries is undermining the Renewable Fuel Standard — a program that Administrator Pruitt told Congress he was committed to upholding."

**FERC AGREES TO $2.7M FINE OVER 'SERIOUS' CYBER VIOLATIONS:** FERC has finalized the fine against a company for violating cybersecurity rules that the North American Electric Reliability Corp. said "posed a serious and substantial risk to the reliability" of the electric grid. The violations were outlined in a filing with FERC earlier this year, and regulators have agreed to uphold the settlement worked out between the Western Electricity Coordinating Council and the unnamed firm.

**The firm, which is labeled only as "Unidentified Registered Entity,"** neither admitted nor denied the violations but agreed to the fine as well as other sanctions. FERC mulled conducting its own review of the violations but ultimately accepted NERC's resolution this week. It's NERC's policy to not release the names of organizations or companies involved in security violations for fear that the information might be used to exploit a vulnerability.

**WHAT'S 'OFF THE TABLE?'** Democratic Sen. Bill Nelson has not forgotten about Interior Secretary Ryan Zinke's January trip to the Tallahassee airport, where he declared Florida "off the table" for offshore oil drilling. Nelson reiterated his request for more information on the comments in a letter sent Thursday to the secretary, following comments last week made by a Gov. Rick Scott campaign spokesman that the governor supports extending the moratorium on oil drilling in the Gulf of Mexico 125 miles out. An Interior Department spokeswoman told Florida's Bruce Ritchie that the department had no news to announce regarding its ongoing review of Zinke's initial proposal. Read the letter here.

**ZINKE STACKS UP INVESTIGATIONS:** The Center for Western Priorities will release new analysis today on ongoing investigations into Zinke's conduct. The analysis tabulated nine confirmed investigations by the agency's Office of Inspector General and by the U.S. Office of Special Counsel, with at least three more requested by members of Congress. According to the conservation group, the previous four Interior secretaries were the subjects to a combined 11 investigations over 16 years, with Gale Norton the subject of five of those investigations.

**ROUND TWO:** The U.S. and Canada closed out two-days of renegotiations this week to modernize the Columbia River Treaty regime, drawing back on regional recommendations made in 2013. During the two days, the State Department said the U.S. and Canadian negotiators discussed their respective objectives and outlined the scope of the talks. A senior U.S. government official called the negotiations "very productive," and said it



AMERICAN OVERSIGHT

included outlining the need for careful management of flood risk, ensuring a reliable and economical power supply and better addressing ecosystem concerns.

**U.S. lawmakers have specifically called out the so-called Canadian Entitlement,** which they say is too favorable to Canada. The senior official wouldn't go into the specifics of the renegotiations but said they are seeking "an equitable balance" on the issue. Asked about whether Trump's decision to impose sweeping tariffs on U.S. allies, as well as a host of other ongoing negotiations between the U.S. and Canada, would overshadow the talks, the senior official said they were "not aware of any discussions to merge the issues," but said they had "no information that suggests these negotiation will be impacted at this point." The two countries will hold the next round of discussions Aug. 15-16 in British Columbia.

**MAIL CALL!** Bishop, along with Reps. Bruce Westerman and Barbara Comstock, sent a letter Thursday to National Park Service Deputy Director Daniel Smith seeking clarification on the agency's policies for cooperative agreements. The Republican lawmakers urge transparency in the cooperative agreement negotiation between NPS and the Friends of Claude Moore Colonial Farm in McLean, Va., to help keep the farm open. Read the letter.

**LIGHTS, CAMERA, ACTION FUND:** The Center for Biological Diversity officially launched the Center Action Fund on Thursday — a 501(c)(4) organization devoted to electing county, state and federal lawmakers with pro-environmental values and a commitment to protecting endangered species. The action fund also announced its first endorsements in New Mexico and Nevada.

— **The NRDC Action Fund** will announce today that it is endorsing Minnesota Sen. Tina Smith in her campaign for the Senate.

**AD-ING IT UP:** The League of Conservation Voters is launching new Instagram story ads today in opposition of the Trump administration's move to roll back clean car emissions standards. See it here.

**MOVER, SHAKER:** Constant Power Inc. announced Miranda Ballentine would become CEO, effective today. Ballentine most recently served as managing director of Rocky Mountain Institute's Business Renewable Center. She succeeds the company's founder, Bryan Elliott, who will continue to serve as chairman of the board of directors.

**QUICK HITS**

— Official: 2 more months to restore power in Puerto Rico, Associated Press.

— Oil industry fears toll of Trump steel, aluminum tariffs, The Hill.

— Frozen Pluto has wind-blown dunes made of methane sand, Ars Technica.

— Pebble mine foes find an unlikely friend at EPA, E&E News.

— In a single day, the electric car boom gains speed in 3 states, Bloomberg.

— Companies take first steps to drill for oil in Arctic National Wildlife Refuge, The Washington Post.

**HAPPENING TODAY**

2:00 p.m. — House Natural Resources Committee hearing on Colorado natural gas and oil, Grand Junction, Colo.



AMERICAN OVERSIGHT

**THAT'S ALL FOR ME!**

** **A message from America's Pledge:** One year after President Trump announced plans to withdraw from the Paris Agreement, America's Pledge is showing the world that U.S. cities, states, and businesses can lead us towards our goals - with or without Washington. https://politi.co/2koAHZb **

*To view online*:
https://subscriber.politicopro.com/newsletters/morning-energy/2018/06/oversight-keeps-up-pruitt-probe-238371

**Stories from POLITICO Pro**

**Sources: NSC to study security risk from coal, nuclear power plant shutdowns** Back

By Eric Wolff | 05/25/2018 04:30 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**Pruitt taps outside attorney for help amid investigations** Back

By Andrew Restuccia and Emily Holden | 05/16/2018 04:36 PM EDT

EPA administrator Scott Pruitt has tapped a white-collar defense lawyer to advise him as he grapples with a dozen federal investigations into his activity, according to two people familiar with the situation.

Paul Rauser, co-founder of the firm Aegis Law Group, has been assisting Pruitt for several weeks as the Environmental Protection Agency chief faces fierce scrutiny on everything from his international travel and his lavish spending to his $50-per-night lease in a Capitol Hill condo owned by the wife of an energy lobbyist, these people said. Rauser has recently been spotted at EPA headquarters, according to the people.

Rauser "focuses on domestic and international white-collar criminal defense, corporate internal investigations, and high-stakes commercial litigation and arbitration," according to Aegis' website. He has advised clients on lobbying and campaign finance issues, in addition to representing companies and individuals facing investigations by Congress and the executive branch, the firm's website says.

Neither Rauser nor an EPA spokesman responded to a request for comment.

Pruitt has lost the confidence of many White House staffers, who along with some outside advisers to the president have begun privately expressing frustration that Trump hasn't fired his EPA chief amid the cascade of scandals, according to four current or former White House officials and advisers.

"He's somehow managed to hang on," said one former White House official. "It's amazing."

But Trump is not yet ready to push Pruitt out, according to two of the officials, even though he is beginning to sour on him.



AMERICAN OVERSIGHT

"The president has grown weary, but he hasn't yet gotten to the point that he wants to fire him," the former White House official said. "But the president is no longer going to step into the breach and defend him."

For now, Trump is more focused on other issues, including trade negotiations with China and his possible summit with North Korean dictator Kim Jong Un. But he is aware of — and unhappy with — the string of damaging stories about Pruitt, according to White House aides.

One recent story in particular got the president's attention: a report that conservative radio and television host Hugh Hewitt brokered a meeting with Pruitt to push for the cleanup of a polluted site in California. The story reignited Trump's lingering frustrations with Hewitt, who he believes was unfairly critical of him during the presidential campaign, according to a Republican close to the White House.

White House aides had hoped that Pruitt would be able to get out ahead of the nonstop stream of negative news stories about him. But Pruitt's seeming inability to stop the bleeding has infuriated many in the West Wing, who are sick of having to answer questions about his behavior.

"There's this slow erosion of confidence that he'll be able to handle this stuff in any meaningful way," said a White House official. "'Where does this end?' is a pretty fair question."

Two White House aides said they believe Pruitt could be fired if a series of pending investigations reveal new damaging information about the EPA chief.

For now though, Pruitt is in limbo. "He's in that dead man zone that Rex Tillerson was in," said a Republican close to the White House, referring to Tillerson's months-long slow-motion demise.

Pruitt told lawmakers during a Senate hearing on Wednesday that he has established a legal defense fund, adding that donations to the fund will be made public and he would not solicit contributions from lobbyists or corporations with business before the agency.

Another lawyer working with Pruitt, Foley and Lardner partner Cleta Mitchell, helped set up the fund, according to a person familiar with the issue. The Washington Post first reported Mitchell's involvement in the fund.

Mitchell, in an email, confirmed that Pruitt is her client, but declined to comment further. "Scott has been a friend and client for a number of years — we are both from Oklahoma," she said.

*Nancy Cook contributed to this report.*

*To view online click here.*

Back

**Pruitt fast-tracked California cleanup after Hugh Hewitt brokered meeting** Back

By Emily Holden and Anthony Adragna | 05/07/2018 10:12 PM EDT

EPA Administrator Scott Pruitt placed a polluted California area on his personal priority list of Superfund sites targeted for "immediate and intense" action after conservative radio and television host Hugh Hewitt brokered a



AMERICAN OVERSIGHT

meeting between him and lawyers for the water district that was seeking federal help to clean up the polluted Orange County site.

The previously unreported meeting, which was documented in emails released by EPA under a Freedom of Information Act lawsuit by the Sierra Club, showed Pruitt's staff reacting quickly to the request last September by Hewitt, who has been one of Pruitt's staunchest defenders amid a raft of ethics controversies around his expensive travel, security team spending and a cheap Washington condo rental from a lobbyist.

Pruitt has drawn criticism from environmentalists and other critics for letting prominent GOP backers and industry groups influence the agency's agenda — even as he has kicked scientists off of EPA's advisory panels and moved to limit the kinds of peer-reviewed research it will consider when making decisions.

In many cases, the people whose advice Pruitt is heeding could be useful supporters for him in a future race for U.S. senator or president. They include GOP megadonor Sheldon Adelson, who — as POLITICO reported in March — persuaded Pruitt last year to take a meeting with an Israeli water purification company called Water-Gen that later won a research deal with the EPA.

Hewitt, a resident of Orange County whose son James works in EPA's press office, emailed Pruitt in September to set up a meeting between the administrator and the law firm Larson O'Brien, which employs Hewitt and represents the Orange County Water District. Pruitt had been planning to meet with the lawyers in California a month earlier, but cancelled the trip to undergo knee surgery.

"I'll join if the Administrator would like me too or can catch up later at a dinner," Hewitt wrote in his Sept. 18 message. Hewitt added that the issues surrounding the Superfund site were "Greek to me but a big deal in my home county."

Pruitt's aides responded within minutes and quickly confirmed an Oct. 18 meeting for the lawyers and a project director.

Six weeks after that meeting, on Dec. 8, the Orange County North Basin site appeared on Pruitt's list of 21 contaminated areas to address. A month later, Pruitt proposed listing the site on EPA's National Priorities List, a move that could make it eligible for long-term federal cleanup funding from the federal government if the responsible polluters cannot be identified and forced to pay for its remediation.

Since then, Hewitt has been a robust defender of Pruitt, dismissing his recent controversies as "nonsense scandals" on MSNBC in early April and saying his detractors were "just trying to stop the deregulation effort."

Pruitt has touted the agency's Superfund work as one of his key priorities, setting up a task force to seek to speed up the clean-up of the nation's worst contaminated sites. That task force had been headed by Albert "Kell" Kelly, a former banker and longtime friend, who departed the agency last week after news about loans he provided to Pruitt in Oklahoma, including the mortgage provided to Pruitt for a house he bought from a lobbyist when he was a state senator.

Environmental advocates have worried Pruitt's efforts to identify Superfund priority sites would bypass the process set up by Congress to ensure cleanup resources are divided fairly, and that he could focus on sites seen as important to his political supporters. And environmentalists have said Pruitt's rush to claim that contaminated properties have been remediated could risk turning them over to local governments and businesses that might pursue cheaper, inadequate solutions.

Elgie Holstein, senior director for strategic planning at the Environmental Defense Fund who has been tracking EPA's Superfund actions, said the connection to Hewitt is "not a surprise."



AMERICAN OVERSIGHT

"The biggest fear we have is that No. 1, the administrator's political priorities and personal ambitions, political ambitions become the primary criteria for action under this program instead of science and health," Holstein said.

EPA never disclosed the meeting with Hewitt's contacts. It was listed on Pruitt's public calendar as a staff briefing. But on his private Outlook schedule, which the agency has released in response to lawsuits, it appeared as an "Orange County Superfund Site" meeting with Kelly and two other staffers. The records did not list the Californians in attendance at the meeting at EPA headquarters in Washington.

But EPA spokesman Jahan Wilcox confirmed that two lawyers representing the water district, Robert O'Brien and Scott Sommer, and the water district director of special projects, Bill Hunt, were there. A third lawyer, former federal Judge Stephen G. Larson, was forced to cancel his trip due to wildfires in California, according to emails.

"Hugh Hewitt helped arrange the meeting at the request of the water district but did not attend," Wilcox said.

Wilcox said the meeting was for the water district to "brief EPA on the Superfund site's cleanup efforts and request expedited cleanup," following a 2016 agreement with the agency to conduct a remedial investigation and feasibility study, at a cost of $4 million over two years. Hunt did not immediately respond to a request for comment.

Hewitt in an email to POLITICO called Pruitt a friend and said he does not have a working relationship with him. He said that his firm has represented the water district and worked on the site with EPA's regional office for years but that he had not participated in that work.

Hewitt said he requested a meeting because the water district wanted to brief the new EPA team, he said, adding that he was an Orange County resident until 2016 as well as an Orange County Children and Families Commission member. He said that he "very much" wanted the Superfund site remediated as soon as possible.

According to an EPA fact sheet, the Orange County site has more than five square miles of polluted groundwater containing chlorinated solvents and other contaminants across the cities of Anaheim, Fullerton, and Placentia. It includes the Orange County Groundwater Basin, which provides drinking water to more than 2.4 million residents across 22 cities, according to the agency. Those pollutants can damage humans' nervous systems, kidneys and livers, and some are considered carcinogenic.

EPA has just begun its process of studying the contamination and it has not determined which companies caused the pollution in the area. But an administrative settlement with the EPA in 2016 says the area was home to "electronics manufacturing, metals processing, aerospace manufacturing, musical instrument manufacturing, rubber and plastics manufacturing, and dry cleaning."

Hewitt also thanked EPA schedulers for working to arrange a meeting between Pruitt and the California Lincoln Clubs, which describe themselves as in favor of "limited government, fiscal discipline and personal responsibility." After some rescheduling Pruitt eventually met with representatives of the group on a trip to California in March of this year, according to his public calendar. Prominent Orange County businessman John Warner also helped to connect that group with staffers.

Pruitt and his scheduling staff have frequently sought to set up meetings with or for influential Republican figures, according to the internal EPA emails.

His team accepted an invitation for him to address The Philanthropy Roundtable at an invitation-only event at the White House for "conservative and free-market foundation CEOs and individual wealth creators to discuss



AMERICAN OVERSIGHT

the greatest opportunities for foundations to protect and strengthen free society" and "what [Pruitt] views as unique opportunities for philanthropic action.

As POLITICO reported in March, Pruitt also met with an Indiana coal executive and Trump fundraiser who was seeking to soften a pollution rule.

Pruitt also crafted his travel schedule — including a tour of states in August — to meet with big business much like a member of Congress would during the annual recess.

In July, EPA's associate administrator of public engagement Tate Bennett was working with Pruitt to "essentially create an August recess for the EPA to be out in the states talking with individual companies & doing listening sessions within sectors," said Leah Curtsinger, the federal policy director for the Colorado Association of Commerce & Industry, in an email introducing Bennett to her husband, public affairs director at coal company Cloud Peak Energy and a fellow alum of Senate Majority Leader Mitch McConnell's office.

*Annie Snider contributed to this report.*

*To view online click here.*

Back

**POLITICO Pro Q&A: House Natural Resources Chairman Rob Bishop** Back

By Anthony Adragna | 05/31/2018 04:41 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**EPA science advisers vote to review Pruitt rule rollbacks** Back

By Alex Guillén | 05/31/2018 07:26 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**Carmakers facing crucial White House meeting** Back

By Eric Wolff | 05/11/2018 05:03 AM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*Alex Guillén contributed to this report.*

*To view online click here.*

Back

**Climate change skeptics run the Trump administration** Back

By Emily Holden | 03/07/2018 05:07 AM EDT

President Donald Trump is filling the upper ranks of his administration with appointees who share his disbelief in the scientific evidence for climate change — giving them an opportunity to impose their views on policies ranging from disaster planning to national security to housing standards.

At the Interior Department, decisions about Pacific island territories threatened by rising seas are in the hands of an assistant secretary who has criticized "climate alarmists" for "once again predicting the end of the world as we know it." Agriculture Secretary Sonny Perdue's top advisers include a former talk radio host who has dismissed much climate research as "junk science." Trump's nominee to head research and technology at the Department of Transportation claimed three years ago that global warming had "stopped" — a position at sharp odds with the findings of federal agencies like NASA.

Trump has chosen at least 20 like-minded people to serve as agency leaders and advisers, according to a POLITICO review of his appointees' past statements on climate science. And they are already having an impact in abandoning former President Barack Obama's attempt to help unite the world against the threat of rising sea levels, worsening storms and spreading droughts.

Most famously, the president and his team have scrubbed mentions of climate change from government websites, kicked scientists off advisory boards, repudiated the Obama administration's greenhouse gas regulations and made the U.S. the only nation on Earth to reject the 2015 Paris agreement on global warming.

More quietly, Trump's White House excluded rising temperatures from the list of threats in its December national security strategy, contradicting the approach of both the Obama and George W. Bush administrations. Last year, just before Hurricane Harvey drowned Houston, the White House rescinded requirements that projects built with federal dollars take into account the way warming temperatures might intensify extreme weather.



AMERICAN OVERSIGHT

People worried about the consequences of climate change say a government that denies the problem is courting danger.

"The analogy could be if somebody's got a heart problem or high cholesterol, you take medicine that helps manage that so you can avoid a heart attack," said Ana Unruh Cohen, the government affairs director at the Natural Resources Defense Council. "Trump taking that away, saying, 'Forget it, I don't believe I have high cholesterol,' is setting up the country for a heart attack."

Aparna Mathur, a resident scholar in economic policy at the conservative American Enterprise Institute, found the trend worrying as well.

Many administration officials "don't seem to believe climate change is real, or if they believe climate change is real, there's this sort of attitude that there's not much to do about it or it's not caused by human actions," said Mathur, whose AEI colleagues also include people who question the extent of man-made climate change. As a result, she said, the U.S. is falling behind countries that are taking action on the problem.

The doubts are coming from both prominent and little-known Trump appointees, in ways both obscure and subtle.

Some have expressed doubt that the Earth is warming at all, speculated that the trend might be good for humans, or said it's just impossible to know how much of a role humans and their pollution are playing. All these statements fly in the face of findings by the government's own research agencies and the vast majority of climate scientists.

"There are scientists that think lots of different things about climate change," then-Rep. Mike Pompeo (R-Kan.), now Trump's CIA director, said on C-SPAN in 2013. "There's some who think we're warming, there's some who think we're cooling, there's some who think that the last 16 years have shown a pretty stable climate environment." Pompeo dodged the issue in his confirmation hearing last year, saying he would "prefer today not to get into the details of the climate debate and science."

When he was running for president, HUD Secretary Ben Carson scoffed at the idea that strong evidence for human-caused climate change even exists. "I know there are a lot of people who say 'overwhelming science,' but then when you ask them to show the overwhelming science they never can show it," he told the San Francisco Chronicle in 2015.

Few have been as publicly outspoken on the issue as Trump, who more than once has dismissed human-caused climate change as a "hoax" and claimed in January that polar ice isn't melting.

The White House sought to strike a somewhat more moderate tone in a statement to POLITICO on Monday, which said that "the climate has changed and is always changing. The Administration supports rigorous scientific analysis and debate." The statement from principal deputy press secretary Raj Shah added that "the development of modern and efficient infrastructure ... will reduce emissions and enable us to address future risks, including climate related risks."

Some of the administration's climate skeptics have already come and gone.

Former HHS Secretary Tom Price, who had criticized the "allegedly 'settled science' of global warming" as a member of Congress, resigned in September amid criticism of his expensive travels on government and private planes. Kathleen Hartnett White, Trump's pick to head the White House Council on Environmental Quality, withdrew her nomination earlier this year after she stirred criticism with a long list of controversial statements , including calling the human role in climate change "very uncertain."



AMERICAN OVERSIGHT

Another unsuccessful nominee, former talk radio host and political science professor Sam Clovis, had to pull out of the running to be USDA's chief scientist after critics noted that he has no science credentials — but he remains a top adviser to Perdue. Clovis dismissed much climate research as "junk science" in a 2014 interview, adding that "a lot of this global warming ... is really about income redistribution from rich nations that are industrialized to nations that are not."

Brent Fewell, a conservative environmental lawyer who was an EPA water official under Bush, suggested that some of these officials may privately acknowledge that man-made climate change is real. But he added: "A lot of people on the political right are uninformed about the issue. For whatever reason, it's a lot easier to simply agree with the prominent voices in the political party."

The upshot is the same, however: a 180-degree reversal from Obama's efforts to make the U.S. a leader in addressing the causes and consequences of a warming planet.

The EPA is leading the charge by withdrawing or weakening a host of climate regulations, including a 2015 rule that would have sped the electric power industry's shift away from coal-fired energy. Trump has also approved tariffs for solar panel imports, which will make it harder for green energy to compete with fossil fuels. Agencies have sought to cancel rules meant to limit the oil and gas industry's methane pollution — another major greenhouse gas source — and are reconsidering tougher standards for vehicles, too.

The Energy Department has proposed regulatory changes to prop up coal plants that can't compete in the market, while the White House is seeking buyers for U.S. coal and gas exports.

When Trump's critics seek to challenge these actions in court, the government's defense will be run by the Justice Department — an agency whose leader, Attorney General Jeff Sessions, said during a 2015 Senate hearing that carbon dioxide is "really not a pollutant."

"It's a plant food, and it doesn't harm anybody except that it might include temperature increases," Sessions said.

Some agencies are still continuing to study climate change and factor their findings into their policy decisions. But even there, career staffers may not talk about their work as openly as they once did, and the agencies seldom showcase it the way they did during the Obama years.

Much of the alarm among Trump's critics focuses on EPA, which has replaced dozens of scientists on its key advisory boards with industry or state representatives, and has found other ways to keep researchers from contradicting the administration's message. Last fall, the agency canceled an appearance by three EPA scientists scheduled to speak about climate change at a Narragansett Bay conference . Both EPA and the Energy Department have given extra scrutiny to grant proposals with the words "climate change," and in the case of EPA, it has put a political appointee in charge of signing off on them, The Washington Post has reported.

All this is in line with the public statements of EPA Administrator Scott Pruitt, who has suggested that global warming might be a good thing and has spoken about holding a public debate on whether climate change is real.

"Right out of the gate ... the administration took any and all mention of climate change off of the White House website," said Jacob Carter, a research scientist who has been tracking the administration's treatment of science for the Union of Concerned Scientists. "It seems like the administration is really trying to undo a lot of the scientific process as a whole and get experts out of the way."

The Environmental Data and Governance Initiative, which has studied the purging and rewording of climate-related documents on government websites, reported at the end of 2017 that it had found a "significant loss of public access to information about climate change."



AMERICAN OVERSIGHT

The State Department's website took down links related to the Paris climate agreement, EPA removed a student's guide to climate change, and the Energy Department got rid of the words "clean energy" on a page with information for investors and businesses looking for projects with national laboratories.

The Interior Department's Bureau of Land Management, which oversees energy development on federal land, cut text about the effects of climate change. Some of the resources are still technically available in archives or in new locations, but they are harder to find because the government sites don't directly link to them, the Environmental Data and Governance Initiative says.

"It's not alarming the public because it's very hard to see each incremental thing," said Andrew Bergman, a co-author of the report.

Some Trump appointees have downplayed the idea that agency leaders' personal views about climate change are critical to making policy, suggesting they can still respond to global warming's effects without addressing why it's happening.

"We continue to take seriously climate change — not the cause of it, but the things that we observe," Tom Bossert, the president's homeland security adviser, told reporters after last year's spree of catastrophic hurricanes that ravaged Houston, Puerto Rico and the Virgin Islands.

Sarah Hunt, who works in energy policy at the conservative American Legislative Exchange Council, said that "policymaker views on climate science needn't have any bearing on their support for conservative clean energy policies that spur the innovation we need to reduce emissions and promote environmental stewardship while we grow our economy."

But Trump's actions have reflected his views on the science. For example, one of his early executive orders in March 2017 eliminated a number of ways agencies had been required to consider climate change, including in environmental reviews for infrastructure projects.

Because so many of his appointees have questioned the conclusions of climate scientists, they are jettisoning climate change from routine processes. Those include EPA's refusal to consider the global monetary benefits of curbing rising temperatures when it rolled back Obama-era rules for the power sector.

Still, some agencies have continued to issue major reports that warn that climate change is a real and growing problem — even as the president's staffers push the message that the science is uncertain.

In November, the government's 13-agency National Climate Assessment concluded that humans have pushed global temperatures to their highest level in modern times. In January, NASA published data showing that last year was the second-warmest on record, and noted that temperature rises are "driven largely by increased carbon dioxide and other human-made emissions into the atmosphere."

Trump's nominee to run the space agency, Rep. Jim Bridenstine (R-Okla.), criticized "climate change alarmists" on the House floor in 2013 and claimed that "global temperatures stopped rising 10 years ago." (In fact, they haven't.) At his confirmation hearing last year, he acknowledged that humans are a cause of climate change but wouldn't call them the main cause.

"That is a question that I do not have an answer to," he said.

*To view online click here.*



AMERICAN OVERSIGHT

Back

**Florida lawmakers rip Trump plan to ease offshore drilling rule** Back

By Ben Lefebvre | 04/27/2018 04:26 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**Republicans gobsmacked by Trump's tariffs** Back

By Burgess Everett | 05/31/2018 01:48 PM EDT

Republicans are bitterly protesting the Trump administration's decision to impose sweeping tariffs on U.S. allies — alarmed that the White House ignored their frenzied lobbying campaign and afraid that the party could suffer at the polls in November.

The GOP's free-traders were mollified this spring as the Trump administration exempted U.S. allies from steel and aluminum tariffs imposed on other countries like China. But on Thursday, that all changed as President Donald Trump imposed 10 percent tariffs on aluminum imports and 25 percent tariffs on steel imports from the European Union, Canada and Mexico.

The move thrusts the GOP back into an internecine war over free-trade policies that have defined the party for decades, just as Republicans mobilize for a hotly contested midterm campaign.

Sen. Pat Toomey (R-Pa.) called it "bad news" and predicted imminent retaliation from the key U.S. allies. Senate Finance Chairman Orrin Hatch (R-Utah) said there is "mounting evidence that these tariffs will harm Americans." And Sen. Ben Sasse (R-Neb.) warned that similar policies 90 years ago sparked the Great Depression.

"This is dumb. Europe, Canada, and Mexico are not China, and you don't treat allies the same way you treat opponents," Sasse said. "'Make America Great Again' shouldn't mean 'Make America 1929 Again.'"



AMERICAN OVERSIGHT

Senate Foreign Relations Chairman Bob Corker called the move an "abuse of authority only intended for national security purposes."

"This is a big mistake. These tariffs will raise prices and destroy manufacturing jobs, especially auto jobs, which are one-third of all Tennessee manufacturing jobs," said Sen. Lamar Alexander (R-Tenn.), who said tariffs are "basically higher taxes on American consumers."

Most Republicans believed that the Trump administration's tariffs on aluminum and steel would be relegated to China and that exemptions for allies would continue into the summer. So Congress was largely blindsided by the administration's reversal.

Most senior Capitol Hill staffers weren't notified of the decision until late Wednesday, and briefings on the new policies weren't conducted until Thursday, according to Republican sources. Congressional leaders were briefed on Thursday morning, according to a person familiar with the matter.

Rank-and-file lawmakers were similarly caught off-guard, having hoped that their campaign against Trump's protectionist instincts would bear fruit.

"I don't like trade wars. There are no winners in trade wars. There are only losers. And this scares me," said a Republican senator. "A lot of us have talked to him, in person, repeatedly about this. He knows where we stand on it."

The administration defended the tariffs as protecting domestic steel and aluminum industries. White House spokesman Raj Shah said tariffs on Canada and Mexico are aimed at China and enhancing national security.

"The president's actions are about protecting American steel, American aluminum. They're critical for national security. And he's worked to exempt certain countries and certain allies for which we have trading or security relationships. But in these instances it wasn't possible and the president took action," Shah said on Fox News.

The U.S. has reached steel agreements with South Korea and Brazil, and agreements on both steel and aluminum with Australia and Argentina, the administration said. But that is little consolation to congressional Republicans who are furious about the administration punishing Canada, Mexico and Europe.

"The Trump administration's trade policy is a disaster. Whacking critical allies with massive steel and aluminum tariffs under the bogus pretense of a national security threat is not in the best interest of the United States, our consumers or our businesses," said a senior Republican aide.

Indeed, trade is the area where Republicans have grown most uncomfortable with the president. They generally tolerate his over-the-top Twitter account and have grown accustomed to his coarse rhetoric, in part because he has enacted and supported many of the center-right policies that the GOP has pursued for years, such as confirming conservative judges and cutting taxes.

Republicans worry that Trump's protectionist trade policies could undermine all that and threaten a healthy economy before the midterm elections. Yet House Speaker Paul Ryan (R-Wis.) and Senate Majority Leader Mitch McConnell (R-Ky.) have shown no interest in passing legislation to block Trump's tariffs or require congressional approval, a move that would essentially bring Capitol Hill to a standstill.

"I disagree with this decision," Ryan said in a statement. "There are better ways to help American workers and consumers. I intend to keep working with the president on those better options."



AMERICAN OVERSIGHT

Indeed, Republicans seem to believe their only move is to complain as loudly as they can, and hope someone at the White House is listening.

"These tariffs are hitting the wrong target. When it comes to unfairly traded steel and aluminum, Mexico, Canada, and Europe are not the problem — China is," added House Ways and Means Chairman Kevin Brady (R-Texas). "I call on the administration to continue the exemptions and negotiations with these important national security partners."

*Rachael Bade and Rebecca Morin contributed to this report.*

*To view online click here.*

Back

Was this Pro content helpful? Tell us what you think in one click.


Yes, very


Somewhat


Neutral


Not really


Not at all

**You received this POLITICO Pro content because your customized settings include: Morning Energy. To change your alert settings, please go to https://subscriber.politicopro.com/settings**

POLITICOPRO

**This email was sent to brian.mccormack@hq.doe.gov by: POLITICO, LLC 1000 Wilson Blvd. Arliugton, VA, 22209, USA**



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 5:01 AM
**To:** Hynes, Shaylyn
**Subject:** RE: Talkers...

yes

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 7:57 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Talkers...

Good here.

Do you want me to circulate to the working group?

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 6:50 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Talkers...

Look at this version

(b) (5)

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 6:51 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Talkers...

Chomp away.

https://www.bloomberg.com/news/articles/2018-06-01/trump-said-to-grant-lifeline-to-money-losing-coal-power-plants-jhv94ghl?utm_source=google&utm_medium=bd&cmpId=google



AMERICAN OVERSIGHT

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 5:50 AM
**To:** Turenne, William;Liben, Paul
**Subject:** FYI

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 6:24 AM
**To:** Herz, James P. EOP/OMB
**Subject:** RE: Energy Star

I can do 9:45.

---

**From:** Herz, James P. EOP/OMB [mailto:James.P.Herz@omb.eop.gov]
**Sent:** Friday, June 01, 2018 8:49 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Energy Star

Does 9:45am or anytime 2-4:30pm work today for a quick 5 min call?

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Thursday, May 31, 2018 5:21 PM
**To:** Herz, James P. EOP/OMB <James.P.Herz@omb.eop.gov>
**Subject:** RE: Energy Star

I just left you a vm. I'm at (b) (6)

---

**From:** Herz, James P. EOP/OMB [mailto:James.P.Herz@omb.eop.gov]
**Sent:** Thursday, May 31, 2018 4:08 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Energy Star

You got time for a quick call on Energy Star? My direct is 202-395-1237.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 6:25 AM
**To:** Turenne, William;Hynes, Shaylyn;Fibbe, George;Cunningham, Sean;Menezes, Mark;Colgary, James;Haus, Bob;Wilmot, Dan;Walker, Bruce;Lotto, Adrienne;Varnasidis, Sophia;Atkins, Elise;Burnison, Melissa;Bolton, Dwayne S.;Little, Douglas
**Subject:** RE: *Flash* Talking Points for review

Adding CI

The points are fine by me.

---

**From:** Turenne, William
**Sent:** Friday, June 01, 2018 8:54 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Subject:** RE: *Flash* Talking Points for review

+ Elise Atkins for SA

---

**From:** Turenne, William <William.Turenne@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:40 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: *Flash* Talking Points for review

(b) (5)

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:30 AM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienue.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** *Flash* Talking Points for review

*Priveleged and Confidential*



AMERICAN OVERSIGHT

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 2:34 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

Privileged and Confidential

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, May 29, 2018 3:15 PM
To: Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>;



AMERICAN OVERSIGHT

McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

(b) (5)

, thanks.

-----Original Message-----
From: Hynes, Shaylyn
Sent: Tuesday, May 29, 2018 2:57 PM
To: Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: *Privileged & Confidential* PROPOSED STATEMENT FOR WH
Importance: High

*Privileged and Confidential* Pre-Decisional* Not for Distribution*

All,

(b) (5)

(b) (5)

Please review and track any chances ASAP.

Thank you,
Shaylyn



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Special Projects Update |
| **Location:** | Brian McCormack's Office |
| **Start:** | Fri 6/1/2018 7:30 AM |
| **End:** | Fri 6/1/2018 8:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Joshua Jones (joshua.jones@hq.doe.gov) |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 7:36 AM
**To:** Sanford, Jessica L.
**Subject:** RE: Meetings with S3 Today

The 2 pm just got canceled. The noon will be down here in the Manhattan Project conf room.

-----Original Message-----
From: Sanford, Jessica L.
Sent: Friday, June 01, 2018 10:32 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: Meetings with S3 Today

Hi Sir,
S3 mentioned attending two meetings with you this afternoon, I believe at noon and 2PM respectively. I just wanted to check to see if I needed to reserve a conference room and wanted to make sure we have the correct time? Happy to be of assistance however I can.

Thanks,
Jess



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 7:36 AM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

Understood. If you want to talk later or over the weekend let me know. This issue got some news as well....

https://www.bloomberg.com/news/articles/2018-06-01/trump-said-to-grant-lifeline-to-money-losing-coal-power-plants-jhv94ghl

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Friday, June 01, 2018 10:27 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: Secretary Perry/ LLA

Can't do today. Crazy because of these idiotic tariffs.

Let's shoot for next week.

Sent from my BlackBerry 10 smartphone.

---

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 1:00 PM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

We did not. Do you have preferred times tomorrow or Friday? I should be able to make most anything work.

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Wednesday, May 30, 2018 11:29 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Secretary Perry/ LLA

Brian, did we set up a time for me to come over to discuss the coal/nuclear issue? Looking forward to getting together with your team.

Steve

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org



AMERICAN OVERSIGHT

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Thursday, May 24, 2018 10:27 AM
**To:** Moore, Steve <Steve.Moore@heritage.org>
**Subject:** RE: Secretary Perry/ LLA

Sir,

Checking to see what your availability is to connect on this issue. Thank you.

Brian

---

**From:** McCormack, Brian
**Sent:** Monday, May 21, 2018 10:04 AM
**To:** 'steve.moore@heritage.org' <steve.moore@heritage.org>
**Subject:** Secretary Perry/ LLA

Steve,

It was good to run into you again at the Laffer meeting last week. As promised, attached is a copy of Secretary Perry's remarks (these are not for distribution). Also, here is the link to one story in Forbes and pasted below is another from E&E on the topic. Please let me know any available times on your schedule this week so we can try and reconnect in person.

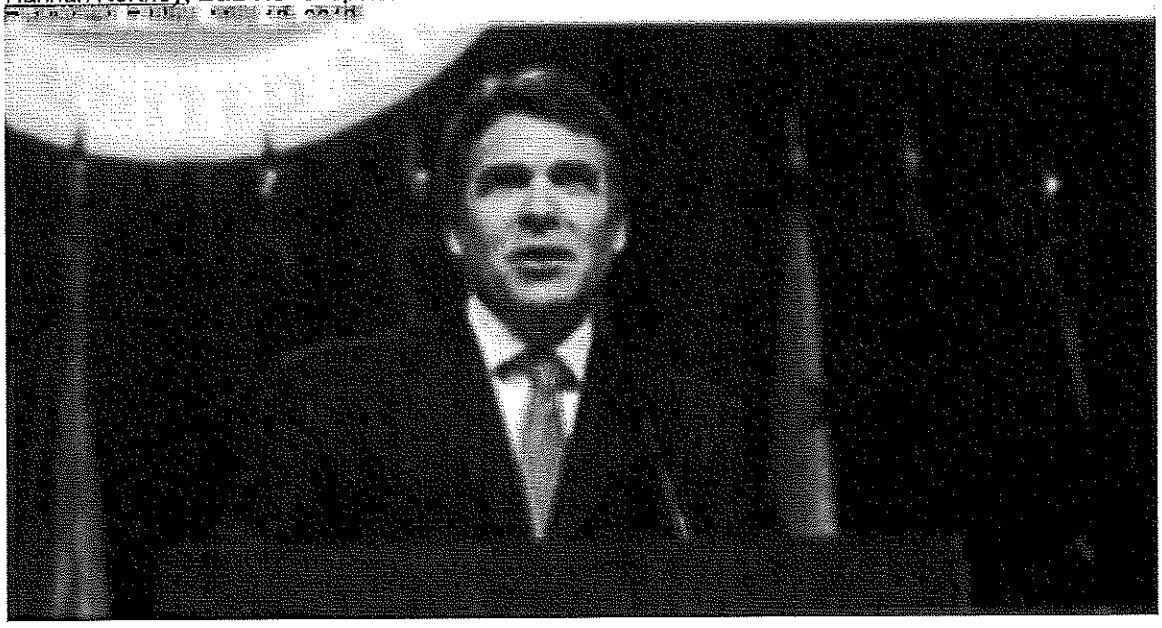
Best,
Brian

(b) (6) office
(b) (6) mobile

## E&E: WHITE HOUSE

## Top aides not considering rescue for coal, nuclear — source

Hannah Northey, E&E News reporter





AMERICAN OVERSIGHT

Energy Secretary Rick Perry is considering policies to save coal and nuclear plants. Staff Sgt. Jim Greenhill/U.S. Army/Flickr

The National Security Council is leading a new search for policies to safeguard the U.S. electric grid — talks that won't include efforts to subsidize specific coal and nuclear plants, said a senior Energy Department official.

The NSC Deputies Committee is helming discussions about what steps should be taken to ensure the U.S. energy system — transmission, pipelines, power plants and more — remains resilient in the face of cyberattacks, storms and other threats.

What's not included: subsidies for any particular type of generation, including ailing nuclear and coal plants that have been asking the agency for financial lifelines. The administration is leaving that option to Congress, said the official, who asked to remain anonymous.

Discussions unfolding on the panel — currently being led by Mira Ricardel, a deputy to White House national security adviser John Bolton — are focused on defense and resilience, not economics, said the official.

The NSC is President Trump's principal forum for considering national security and foreign policy matters with his senior national security advisers and Cabinet officials. DOE is a permanent member of the council.

Advertisement

Ricardel, who served as a former defense aide to Trump's campaign and worked in the Pentagon under the George W. Bush administration, is leading the committee, which also includes DOE Deputy Secretary Dan Brouillette, Deputy Secretary of State John Sullivan and Deputy Attorney General Rod Rosenstein, among others.

The official said the committee could formulate recommendations soon.

Current policy levers on the table — as part of a broader discussion within the standard White House policy process focused on critical infrastructure writ large — include the Defense Production Act of 1950, the Fixing America's Surface Transportation (FAST) Act of 2015 and the Energy Policy Act, said the official.

Even though such policies are being considered, the official reiterated the panel is not suggesting there is any economic emergency and said no singular company's situation would be factored into any recommendations that may be produced.

When asked what recommendations discussions could generate, the official said it's not yet clear, nor is there a definitive timeline.

The official confirmed DOE is in the process of identifying defense-critical electric infrastructure under the FAST Act — a move Bruce Walker, DOE's assistant secretary for electricity delivery and energy reliability, shared with grid overseers last week (*Energywire*, May 11).

Walker said that law directed DOE to "identify what the defense-critical electric infrastructure was in the United States."

When asked whether that designation could lead to financial support, the DOE official said simply pointing out that a facility is important to the grid doesn't equate to a subsidy.

The official's comments offer a sharp contrast to a steady stream of reports of the administration considering the statutes to throw certain facilities a financial lifeline.

Separate from the NSC discussions is a direct request from an Ohio-based utility for DOE to directly intervene using federal statute.

In late March, FirstEnergy Corp.'s generating subsidiary made a formal request for the department to use its authority under Section 202(c) of the Federal Power Act to declare a grid emergency and direct subsidies to unprofitable coal and nuclear plants.

DOE is still reviewing that application.

A number of grid experts have warned that protecting the power grid by subsidizing coal and nuclear misses other important threats and ignores more affordable and effective defenses (*Energywire*, May 3).

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Phone Call: Doug Davenport, (b) (6) |
| **Location:** | Phone Call |
| **Start:** | Fri 6/1/2018 8:00 AM |
| **End:** | Fri 6/1/2018 8:15 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Doug Davenport |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 10:37 AM
**To:** Almstead, Deidre;Wilmot, Dan;Varnasidis, Sophia;Winberg, Steven;Maddox, Mark
**Cc:** Gerdes, Stan
**Subject:** RE: Urgent Call Request - Secretary Perry

He already has a call scheduled with S2 at 3 pm. Please hold.

---

**From:** Almstead, Deidre
**Sent:** Friday, June 01, 2018 1:33 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Winberg, Steven <Steven.Winberg@hq.doe.gov>; Maddox, Mark <MRMaddox@hq.doe.gov>
**Cc:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: Urgent Call Request - Secretary Perry
**Importance:** High

Jack Gerard, President & CEO of API asking to speak to S1 today on "the recent announcement on coal and nuclear power plants" is this something that needs to be handled by S1?

---

**From:** Laine Evans [mailto:levans@guidepost-strategy.com]
**Sent:** Friday, June 01, 2018 1:30 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Cc:** Larissa Martin <lmartin@guidepost-strategy.com>
**Subject:** Urgent Call Request - Secretary Perry
**Importance:** High

Good Afternoon –

I sincerely apologize for the last minute request here, but is there any way Secretary Perry could hop on a quick phone call with Jack Gerard, President & CEO of API? This is in regards to the recent announcement on coal and nuclear power plants.

He is open all afternoon, with the exception of 2:45pm.

Thanks very much, we appreciate your help.

Best,
Laine

**Laine Evans**
GuidePostStrategies
Cell: (b) (6)
Email: levans@GuidePost-Strategy.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Hold for Steve Moore (confirm in the morning this time works) |
| **Location:** | DOE 1000 Independence Ave SW (check-in details will be provided) |
| **Start:** | Fri 6/1/2018 11:00 AM |
| **End:** | Fri 6/1/2018 12:00 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Moore, Steve |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 12:25 PM
**To:** (b) (6)
**Subject:** FYI

*"The United States of America has the most technologically advanced and developed infrastructure in the world with access to a reliable, dependable and diversified electric grid.*

*President Trump believes in total energy independence and dominance, and that keeping America's energy grid and infrastructure strong and secure protects our national security, public safety and economy from intentional attacks and natural disasters.*

*Unfortunately, impending retirements of fuel-secure power facilities are leading to a rapid depletion of a critical part of our nation's energy mix, and impacting the resilience of our power grid.*

*President Trump has directed Secretary of Energy Rick Perry to prepare immediate steps to stop the loss of these resources, and looks forward to his recommendations."* -- Sarah Sanders, White House Press Secretary



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Saturday, June 02, 2018 2:59 AM
**To:** Hynes, Shaylyn;Atkins, Elise;Turenne, William;Brouillette, Dan;Menezes, Mark
**Cc:** Wilmot, Dan;Varnasidis, Sophia;Walker, Bruce;Lotto, Adrienne;Fibbe, George;Cunningham, Sean;Haus, Bob;Colgary, James
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

Privileged and Confidential

(b) (5)

http://www.api.org/news-policy-and-issues/news/2018/06/01/oil-wind-solar-condemn-action-to-subsidize-failing-coal-nuclear-plants

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 2:20 PM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

*privileged and confidential * Statement from PJM:

*FOR IMMEDIATE RELEASE*
Contact: PJM News, at **PJMNews@pjm.com** or toll free at 866-PJM-NEWS (866-756-6397)
**PJM Statement on Potential Department of Energy Market Intervention**
(Valley Forge, Pa. – June 1, 2018)
PJM has not received any official document from the Department of Energy.
Our analysis of the recently announced planned deactivations of certain nuclear plants has determined that there is no immediate threat to system reliability. Markets have helped to establish a reliable grid with historically low prices. Any federal intervention in the market to order customers to buy electricity from specific power plants would be damaging to the markets and therefore costly to consumers.
There is no need for any such drastic action. PJM just released the results of its capacity auction, which secured reliable supplies through 2021/2022. The auction results saw an increase in the amount of coal resources that cleared the market, along with a diverse mix of natural gas generation, nuclear generation, renewable resources, demand response and energy efficiency.
The PJM electrical grid is more reliable than ever, with 23 percent reserve margins and billions of dollars of new investment. All of this is occurring while emissions are decreasing and wholesale prices are at historic lows for the 65 million consumers we serve. From 2008 to 2017, wholesale prices in PJM fell by more than 40 percent. Competition has required generators to operate more efficiently while also attracting new, more efficient technology, resulting in more than $1.4 billion in annual savings.

We have acknowledged the concerns raised by officials and regulators about the long-term resilience of the grid and we are embarking on a fuel security initiative that we announced just a few weeks ago. Our goal with that initiative is to



AMERICAN OVERSIGHT

ensure that the already reliable electric grid will continue to remain both reliable and resilient for years into the future without the need for government intervention in the marketplace.

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 1:02 PM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*
**Importance:** High

*FYI the following has gone out from Sarah sanders. I am responding to reporters with this.*

*"The United States of America has the most technologically advanced and developed infrastructure in the world with access to a reliable, dependable and diversified electric grid.*

*President Trump believes in total energy independence and dominance, and that keeping America's energy grid and infrastructure strong and secure protects our national security, public safety and economy from intentional attacks and natural disasters.*

*Unfortunately, impending retirements of fuel-secure power facilities are leading to a rapid depletion of a critical part of our nation's energy mix, and impacting the resilience of our power grid.*

*President Trump has directed Secretary of Energy Rick Perry to prepare immediate steps to stop the loss of these resources, and looks forward to his recommendations."* -- Sarah Sanders, White House Press Secretary

Best,

---

**From:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 11:25 AM
**To:** Turenne, William <William.Turenne@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

(b) (5)



AMERICAN OVERSIGHT

**From:** Turenne, William
**Sent:** Friday, June 01, 2018 12:20 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

Copy that. + Elise again.

Shaylyn, can you please let the group know once it has been made public?

Thanks.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 12:07 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

(b) (5)

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 11:34 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

Update: the memo is now posted online : https://www.scribd.com/document/380740746/DOE-Coal-Nuke-Subsidy-Plan-1

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 11:03 AM



AMERICAN OVERSIGHT

**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

**All-please see below from Marc. This is yet another version and is final. Thanks!**

Sorry, sent the wrong version.this is the final draft. My apologies.

Revised 6/1:

The United States of America has the most technologically advanced and developed infrastructure in the world with access to a reliable, dependable and diversified electric grid.

President Trump believes in total energy independence and dominance, and that keeping America's energy grid and infrastructure strong and secure protects our national security, public safety and economy from intentional attacks and natural disasters.

Unfortunately, impending retirements of fuel-secure power facilities are leading to a rapid depletion of a critical part of our nation's energy mix, weakening the resilience of our power grid.

President Trump has directed Secretary of Energy Rick Perry to prepare immediate steps to stop the loss of these resources.

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 11:01 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

+ Jim!

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 10:55 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce



AMERICAN OVERSIGHT

<Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>
**Subject:** *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

***Priveleged and Confidential***

(b) (5) -(b) (5)

(b) (5)

Thanks!

---

**From:** Raimondi, Marc [mailto:(b) (6)
**Sent:** Friday, June 01, 2018 10:49 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Please call me or send me your phone number

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Friday, June 1, 2018 10:44 AM
**To:** Raimondi, Marc <Marc.A.Raimondi@nsc.eop.gov>
**Subject:** RE: Please call me or send me your phone number

Just tried you. Im at (b) (6)

---

**From:** Raimondi, Marc [mailto:(b) (6)
**Sent:** Friday, June 01, 2018 10:42 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Please call me or send me your phone number

Thanks,

Marc Raimondi
Director for Press
National Security Council
Direct: 202-456-6192
Mobile: (b) (6) (no text)
(Department of Justice work contact after June 1*: marc.raimondi@usdoj.gov, 1-202-353-5418)

*Projected



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

EXT-18-2615-L-000133

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Sunday, June 03, 2018 9:19 AM
**To:** Wallwork, Luke;Haddad, Zead;Wilmot, Dan;Turenne, William;Habansky, Sarah
**Cc:** Naughton, Janet
**Subject:** RE: S1 DOE speech for Monday -- question

I'll be looking at later this afternoon

---

**From:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 10:51 AM
**To:** Haddad, Zead <Zead.Haddad@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Speech still in process?

---

**From:** Haddad, Zead
**Sent:** Saturday, June 02, 2018 10:54 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** FW: S1 DOE speech for Monday -- question

FYI below.

---

**From:** Everett, Max <Max.Everett@hq.doe.gov>
**Date:** Saturday, Jun 02, 2018, 10:50 AM
**To:** Haddad, Zead <Zead.Haddad@hq.doe.gov>, Liben, Paul <Paul.Liben@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Will do - waiting on word if Congressman McCaul will attend.

Max

---

**From:** Haddad, Zead <Zead.Haddad@hq.doe.gov>
**Date:** Saturday, Jun 02, 2018, 9:47 AM
**To:** Liben, Paul <Paul.Liben@hq.doe.gov>, Everett, Max <Max.Everett@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>



AMERICAN OVERSIGHT

**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Good afternoon,

Please keep us posted on whether additional members or VIPs will be in the audience during the Secretary's remarks.

Right now, only Chairman Hurd and Mayor are mentioned in the speech and memo.

Thank you.

---

**From:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 12:01 PM
**To:** Everett, Max <Max.Everett@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Thanks Max.

---

**From:** Everett, Max
**Sent:** Friday, June 01, 2018 11:43 AM
**To:** Liben, Paul <Paul.Liben@hq.doe.gov>; Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Subject:** RE: S1 DOE speech for Monday -- question

I think if we stay with elected officials we'll be safe. The Mayor of Austin will be there so we should add him. Only other is I believe we are waiting to hear if Congressman McCaul will attend. Will let you know as soon as we hear about that.

Max

---

**From:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 10:39 AM
**To:** Everett, Max <Max.Everett@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Subject:** S1 DOE speech for Monday -- question

Max and Kathy,

In the opening, we cite Chairman Hurd and thank him for joining us.

Is there any other attendee we need to recognize?

Zead mentioned the mayor of Austin.

We're wrapping this up today, so if you could let us know ASAP, that would be great.

Thanks for all your assistance.

Paul



AMERICAN OVERSIGHT

PS -- Once we start citing others, we need to be sure we don't miss anyone, so if the list is too long, we need to consider that as well.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Sunday, June 03, 2018 2:49 PM
**To:** Hynes, Shaylyn;Wallwork, Luke
**Subject:** RE: Remarks

Good. Circulate to menezes walker max Wilmot Colgary CI Cunningham fibbe Comms Adrienne Sophia.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 5:44 PM
**To:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Remarks

Use this version. One more tweak. Thanks!

---

**From:** Wallwork, Luke
**Sent:** Sunday, June 03, 2018 5:43 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Remarks

I'm good.

Brian let us know when final

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 4:36 PM
**To:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Subject:** Remarks

Per our convo, please review these, make any changes and them send them back to Brian and I so he can take a final look.

Thanks!



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:24 AM
**To:** emilio@emilpenainterestsinc.com
**Subject:** touching base

Emil-

I meant to call you back over the weekend. Sorry.

What's a good time to talk today?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:26 AM
**To:** Trae Stephens
**Cc:** Matt Steckman;Palmer Luckey;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Gerdes, Stan
**Subject:** RE: Anduril Update

Trae- you're not. My challenge is there are a number of items up in the air that may have us not in DC that we've been trying to nail down. Hope to have addressed today.

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Friday, June 01, 2018 2:53 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

At the risk of becoming super annoying, just thought I would reach back out! Our plans for a June trip are starting to move forward and I'd like to prioritize this meeting if we can.

Thanks!
Trae'

On Thu, May 24, 2018 at 1:48 PM, Trae Stephens <trae@anduril.com> wrote:

> Awesome - thanks!
>
> Trae'
>
> On Thu, May 24, 2018 at 1:46 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:
>
> > I have the Scheduling Office looking at that. Back in touch soon.
> >
> > **From:** Trae Stephens [mailto:trae@anduril.com]
> > **Sent:** Thursday, May 24, 2018 4:35 PM
> >
> > **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> > **Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
> > **Subject:** Re: Anduril Update
> >
> > No worries!



AMERICAN OVERSIGHT

Ideally, this would be either the week of the 18th or the 25th. We haven't locked in dates yet. What would work best for the Secretary? You guys can get first dibs! :)

Trae'

On Thu, May 24, 2018 at 1:28 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

Trae- Thanks for the note and sorry for not responding earlier. What days will you bi in DC?

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:23 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

Brian: Thought I'd ping again here to resurface. We would love to chat!

Thanks,

Trae'

On Sat, May 12, 2018 at 10:58 AM, Trae Stephens <trae@anduril.com> wrote:

Brian: I hope this finds you doing well! (b) (6) suggested that I reach out to you with regards to the project (b) (4) (copied) and I have been working on over the past year. We'd love to come in and chat with you and the Secretary about critical infrastructure protection using the technology we are currently deploying (b) (4)

Here's a two-minute video summarizing the work.

URL: (b) (6), (b) (4)

Password: (b) (6), (b) (4)



AMERICAN OVERSIGHT

We will likely be back in DC in early/mid June and would be happy to come by and even do a live demonstration (connecting back to our (b) (4) ).

Let me know what you think!

Thanks,

Trae'



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:46 AM
**To:** Wallwork, Luke
**Subject:** FW: China Update
**Attachments:** table_revisions sunday.pdf

fyi

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:45 AM
**To:** (b) (6)
**Subject:** FW: China Update

fyi

---

**From:** Winberg, Steven
**Sent:** Sunday, June 03, 2018 5:33 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Cc:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Subject:** China Update

***Brian, Sec. Ross asked me to brief S1 prior to Ross' meeting with the President (Monday, 4 PM). Happy to do so at S1's convenience.***

All,
Negotiations on agriculture and energy concluded this morning with discussions led by Secretary Ross and Vice Premier Liu He.

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

A few additional items to flag:

- **Next Steps:**
  - On Monday 4pm Secretary Ross will be briefing the President on the outcomes of the trade meeting.
  - Based on that discussion, on Tuesday I will next steps with Commerce and Treasury.

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:05 AM
**To:** Fibbe, George;Atkins, Elise;Colgary, James
**Cc:** Brown, Michael
**Subject:** RE: Privileged and Confidential

Copying in Jim. (b) (5)

---

**From:** Fibbe, George
**Sent:** Monday, June 04, 2018 8:03 AM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Brown, Michael <Michael.Brown@hq.doe.gov>
**Subject:** RE: Privileged and Confidential

Privileged and Confidential
(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

**From:** Atkins, Elise
**Sent:** Saturday, June 02, 2018 6:37 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>
**Subject:** Privileged and Confidential

Brian, FYI.
(b) (5)

---

**From:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 9:05 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>, Brown, Michael <Michael.Brown@hq.doe.gov>
**Subject:** FW: Jack/Brouillette - Intelligence Briefing - Power Grid Resiliency

Per our discussion, I think this forward for review is confidential and attorney/client privileged, and I am hoping for your guidance on ensuring proper characterization of the communication from Chris to me.
Thank you.



AMERICAN OVERSIGHT

**From:** Chris Kelley <KelleyC@api.org>
**Date:** Friday, Jun 01, 2018, 5:33 PM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Cc:** Susan Tackish <tackishs@api.org>, Khary Cauthen <cauthenk@api.org>, Marty Durbin <durbinm@api.org>
**Subject:** Jack/Brouillette - Intelligence Briefing - Power Grid Resiliency

Elise,

Thank you very much for talking a moment ago and I appreciate your help in connecting Susan and I with Allie Burns and Jim Colgary in Deputy Secretary Dan Brouillette's office. Copied on this email is Susan Tackish who is best able to coordinate API CEO Jack Gerard's schedule; Khary Cauthen, our Sr. Director of Federal Relations; and Marty Durbin, our Executive Vice President and Chief Strategy Officer.

We are very grateful for Mr. Brouillette's time on the phone with Jack this afternoon as well as for his offer to set up an opportunity for Jack, API staff, and API member company representatives who are properly cleared, to be read in and receive a briefing from the appropriate intelligence agencies about the specific nature of the physical and cyber related threats to the power grid, specifically concerning grid resiliency, and their assessments.

Mr. Brouillette was interested in arranging this briefing sooner than later and specifically mentioned that "in the next few days would be ideal" which I understood to be early to mid-next week. This is certainly workable from our end for our participating staff as well identifying appropriate member company representatives.

I'll look forward to speaking more with Allie or Mr. Colgary to work out the details and logistics of this briefing and am available by email or my cell at (b) (6) :o help facilitate. We very much appreciate this opportunity to more fully understand DOE's perspective and policy goals in this area.

Please let me know if I can be of any assistance to you or any other matter.

Chris

**Chris Kelley**
**Director – Federal Relations**

Direct: 202-682-8406 | KelleyC@api.org | API | 1220 L Street NW | Washington, DC 20005

energy API
AMERICAN PETROLEUM INSTITUTE



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:23 AM
**To:** (b) (6)
**Cc:** Wallwork, Luke;Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** RE: China Update

(b) (5)

- Wilbur is meeting with POTUS at 4 today. (b) (5)

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:45 AM
**To:** (b) (6)
**Subject:** FW: China Update

fyi

---

**From:** Winberg, Steven
**Sent:** Sunday, June 03, 2018 5:33 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Cc:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Subject:** China Update

***Brian, Sec. Ross asked me to brief S1 prior to Ross' meeting with the President (Monday, 4 PM). Happy to do so at S1's convenience.***

All,
Negotiations on agriculture and energy concluded this morning with discussions led by Secretary Ross and Vice Premier Liu He.

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

(b) (5)

A few additional items to flag:

- **Next Steps:**
  - On Monday 4pm Secretary Ross will be briefing the President on the outcomes of the trade meeting.
  - Based on that discussion, on Tuesday I will next steps with Commerce and Treasury.

(b) (5)



AMERICAN OVERSIGHT

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:24 AM
**To:** Winberg, Steven;Brouillette, Dan;Menezes, Mark;Garrish, Theodore;Storch, Thomas
**Cc:** Maddox, Mark
**Subject:** RE: China Update

Thanks, Steve. (b) (5)

---

**From:** Winberg, Steven
**Sent:** Sunday, June 03, 2018 5:33 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Cc:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Subject:** China Update

***Brian, Sec. Ross asked me to brief S1 prior to Ross' meeting with the President (Monday, 4 PM). Happy to do so at S1's convenience.***

All,
Negotiations on agriculture and energy concluded this morning with discussions led by Secretary Ross and Vice Premier Liu He.

(b) (5)

(b) (5)

A few additional items to flag:

- **Next Steps:**



AMERICAN OVERSIGHT

- On Monday 4pm Secretary Ross will be briefing the President on the outcomes of the trade meeting.
- Based on that discussion, on Tuesday I will next steps with Commerce and Treasury.

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:29 AM
**To:** Almstead, Deidre;Gerdes, Stan
**Subject:** RE: Anduril Update

Isn't he in partially week of 18th?

---

**From:** Almstead, Deidre
**Sent:** Monday, June 04, 2018 8:07 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: Anduril Update

Resending- let me know if you want us to send directly to these folks

---

**From:** Almstead, Deidre
**Sent:** Wednesday, May 30, 2018 2:16 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: Anduril Update

The week of the 18th wouldn't work because of the G20 in Argentina/potential White House directed travel

The week of the 25th is World Gas Week, so we are back to back that whole week with the Secretary's keynote at the conference and side events/bilateral meetings with the foreign ministers in town for the conference

---

**From:** McCormack, Brian
**Sent:** Tuesday, May 29, 2018 6:49 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: Anduril Update

Need to discuss tomorrow

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:49 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

Awesome - thanks!

Trae'

On Thu, May 24, 2018 at 1:46 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> I have the Scheduling Office looking at that. Back in touch soon.



AMERICAN OVERSIGHT

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:35 PM

**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

No worries!

Ideally, this would be either the week of the 18th or the 25th. We haven't locked in dates yet. What would work best for the Secretary? You guys can get first dibs! :)

Trae'

On Thu, May 24, 2018 at 1:28 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Trae- Thanks for the note and sorry for not responding earlier. What days will you bl in DC?
>
> **From:** Trae Stephens [mailto:trae@anduril.com]
> **Sent:** Thursday, May 24, 2018 4:23 PM
> **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> **Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
> **Subject:** Re: Anduril Update
>
> Brian: Thought I'd ping again here to resurface. We would love to chat!
>
> Thanks,
>
> Trae'
>
> On Sat, May 12, 2018 at 10:58 AM, Trae Stephens <trae@anduril.com> wrote:
>
> > Brian: I hope this finds you doing well! (b) (6) suggested that I reach out to you with regards to the project (b) (4) (copied) and I have been working on over the past year. We'd love to come in and chat



AMERICAN OVERSIGHT

with you and the Secretary about critical infrastructure protection using the technology we are currently deploying(b) (4)

Here's a two-minute video summarizing the work.

URL: (b) (6), (b) (4)

Password: (b) (6), (b) (4)

We will likely be back in DC in early/mid June and would be happy to come by and even do a live demonstration (connecting back to our (b) (4) ).

Let me know what you think!

Thanks,

Trae'



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Dan Simmons and Alex Fitzsimmons |
| **Location:** | Brian McCormack's Office |
| **Start:** | Mon 6/4/2018 6:30 AM |
| **End:** | Mon 6/4/2018 7:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Simmons, Daniel; Alex Fitzsimmons (alexander.fitzsimmons@ee.doe.gov) |

Thank you!

**From:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 10:26 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Subject:** RE: AHAM CEO Letter to the President

Awesome, I will talk to him about it and put it on the calendar.

**From:** Fitzsimmons, Alexander
**Sent:** Thursday, May 31, 2018 10:20 AM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** RE: AHAM CEO Letter to the President

Brian hasn't. Daniel asked me to reach out.

**From:** Assafe, Yordanos
**Sent:** Thursday, May 31, 2018 10:19 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Subject:** RE: AHAM CEO Letter to the President

Sure thing, has Brian given you the okay or should I ask him first?

Thank you!

**From:** Fitzsimmons, Alexander
**Sent:** Thursday, May 31, 2018 10:17 AM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Cc:** Simmons, Daniel <Daniel.Simmons@ee.doe.gov>; Yuzon, Andrea (CONTR) <Andrea.Yuzon@EE.DOE.Gov>
**Subject:** FW: AHAM CEO Letter to the President



AMERICAN OVERSIGHT

Yordanos,

Please see below. Can you set up 15 minutes for Brian and Daniel to meet next week about this? CCing Andrea.

-Alex

**From:** Simmons, Daniel
**Sent:** Thursday, May 31, 2018 10:07 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Subject:** FW: AHAM CEO Letter to the President

**From:** Messner, Kevin <KMessner@AHAM.org>
**Date:** Thursday, May 31, 2018, 5:58 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** AHAM CEO Letter to the President

So you are aware, I wanted to send you the letter that our CEOs sent to the President regarding ENERGY STAR moving back to DOE for home appliances. As you know, for us, it is a culmination of an effort that started as far back as 2016. Our plan is that we will be requesting meetings with our CEOs and the White House and also with Administrator Pruitt and Secretary Perry on June 20/21. I am hopefully, Secretary would be available on those days and will send a request in to his scheduler, but wanted to give you both a heads up.

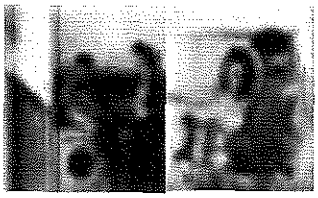
For home appliances, the continued success of the ENERGY STAR program is an essential part of our industry's business. That is why you are seeing so much energy behind this effort from us. At our recent Board meeting, our members discussed how important the future success of the ENERGY STAR program was to the appliance industry's business, and after a year and a half of inaction, they decided to ramp it all the way up to our CEOs and the White House. Our view is that the current bifurcated structure of the Appliance Standard Program being at DOE and the ENERGY STAR program being at EPA creates inefficiencies for our member companies and for the government. Appliance manufacturers financial expenditures are redundantly made to DOE and EPA activities, such as responding to multiple agency analysis, reporting and disclosure, consultants, certification/verification, etc.

Thank you for all your time on this. I remain hopeful we can cross the finish line on this. Thanks again.

**Kevin Messner**
**Senior Vice President, Policy & Government Relations**
Association of Home Appliance Manufacturers
1512 Willow Lane, Davis, CA 95616
1111 19th Street NW, Suite 402, Washington, DC 20036
*t* 202.872.5955 ext. 353 *m* (b) (6) *f* 202.872.9354 *e* kmessner@aham.org
Connect with us:



AMERICAN OVERSIGHT



Every home.
Everywhere.
Every day.

The information contained in this electronic message and any attachments to this message are intended for the exclusive use of the addressee(s). If you are not the intended recipient, or the person responsible for delivering the e-mail to the intended recipient, be advised you have received this message in error and that any use, dissemination, forwarding, printing, or copying is strictly prohibited. Please notify The Association of Home Appliance Manufacturers at (202) 872-5955 or unsubscribe@aham.org <mailto:unsubscribe@aham.org>, and destroy all copies of this message and any attachments.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:55 AM
**To:** Menezes, Mark
**Cc:** Varnasidis, Sophia
**Subject:** IHS

Just checking if they gave you a timeline yet. Thanks.



AMERICAN OVERSIGHT

Document 82

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:58 AM
**To:** Habansky, Sarah
**Subject:** please see me with the outreach list.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:18 AM
**To:** Fitzsimmons, Alexander
**Subject:** call me re energy star



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:25 AM
**To:** Storch, Thomas
**Subject:** FW: Emil Argentina June G20

---

**From:** Emil Pena [mailto:emilio@emilpenainterestsinc.com]
**Sent:** Tuesday, May 01, 2018 2:55 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Emil Argentina June G20

Hi Brian, one, I spoke to Secretary Perry last week at a dinner and mentioned the upcoming G20 meeting in Bariloche, Argentina in June (13th-15th) for the Energy Meeting. Barbara Humpton, who the Secretary knows and now the new President and CEO of Siemens, was with me and we inquired about the business contingent accompanying him for this meeting. He steered me to you to ask how all that works.

Two, I also mentioned that I'm very familiar with the Vaca Muerta (in the state of Neuquén) production zone, a four hour drive from Bariloche or ½ hour flight, and offered a tour. Mr. Perry was curious since he has never been to Argentina, and having him meet the in-country companies that produce and service the wells would be very cool, either before or after G20. He will receive an invitation from Neuquén offering the tour and transportation (flight). Let me know how to best align this. Thanks, Emil

Emil Peña
713-650-8004





AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: David Solan |
| **Location:** | Brian McCormack's Office |
| **Start:** | Mon 6/4/2018 7:30 AM |
| **End:** | Mon 6/4/2018 8:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Solan, David |

No. (b) (5)

**From:** Assafe, Yordanos [mailto:Yordanos.Assafe@hq.doe.gov]
**Sent:** Thursday, May 31, 2018 3:41 PM
**To:** Solan, David <David.Solan@science.doe.gov>
**Subject:** RE: Ethane meeting with Brian

Has he requested this meeting?

**From:** Solan, David [mailto:David.Solan@science.doe.gov]
**Sent:** Thursday, May 31, 2018 3:41 PM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** RE: Ethane meeting with Brian

HI Yordanos – I'd like to get on Brian's schedule to talk about ethane preferably tomorrow after 11am or sometime Monday. Do either of those work?

Thanks



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:57 AM
**To:** Solan, David;Solan, David
**Subject:** FW: Appalachian Sky (Updated Executive Order draft to incorporate your suggestions)
**Attachments:** Appalachian Sky EO 6-5-18 Francis Brooke Meeting.docx

This came in while we were talking. We should discuss.

---

**From:** Matthew J Satterwhite [mailto:mjsatterwhite@aep.com]
**Sent:** Monday, June 04, 2018 10:30 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Anthony P Kavanagh <apkavanagh@aep.com>
**Subject:** Appalachian Sky (Updated Executive Order draft to incorporate your suggestions)

Brian,

I wanted to give you a heads up that I will be meeting with Francis Brooke at the White House executive offices tomorrow just before lunch on the Appalachian Sky executive order we discussed. Let me know if there are any updates you have.

I did take your advice and work in some more direct actions in the Executive Order. I am attaching the new version in redline form to what was previously circulated.

I added in some preamble language in the policy about the opiold epidemic and the impact economic development can have and also added some more specific actions by different cabinets, at your suggestion, to give more of a purpose for each agency. Here are some of the additions that we discussed:

(v) For the Department of Transportation, development of plans to improve the transportation capability of the region to support the shipping of supplies and goods to and from the Appalachian Corridor; (Sidenote: This should help coal too as the biggest barrier now is the lack of affordable transport on CSX out of the area)

(vi) For the Department of Commerce, development of support for the aluminum, steel and emerging metals industry in the Appalachian Corridor to support national security; (Sidenote: I thought this may help Braidy the new aluminum plant and others coming after)

(vii) For the Department of Education, development of apprenticeship programs and technical schools to support the Appalachian Corridor as a manufacturing hub;

(viii) For the Department of Department of Housing and Urban Development, development of a plan to study and address the quality of housing options in the Appalachian Corridor;

(ix) For the Environmental Protection Agency, determine a plan to advance the reclamation and development of brownfield sites for manufacturing locations for the purposes of the Appalachian Corridor; (Sidenote:



AMERICAN OVERSIGHT

This is an attempt to deal with abandoned sites like the AK Steel site in Ashland, taking up a lot of flat land that could be aerospace manufacturers).

Let me know if you have any spare time on Tuesday I can drop in and talk or if we can continue our conversation on getting this idea across the finish line. My meeting with Francis is at 11.

Matt

KENTUCKY POWER
MATTHEW J SATTERWHITE | PRESIDENT & COO - KY
MJSATTERWHITE@AEP.COM | D:606.327.2601 | C: (b) (6)
855 CENTRAL AVENUE, ASHLAND, KY 41101

---

**From:** Matthew J Satterwhite
**Sent:** Tuesday, May 15, 2018 8:24 AM
**To:** 'brian.mccormack@hq.doe.gov'
**Cc:** Anthony P Kavanagh
**Subject:** RE: Appalachian Sky (American Electric Power)

Brian,

I am just following up on the Appalachian Sky executive order with you. I know you had mentioned some ideas for edits. Senator McConnell's office has been in contact with Francis Brooke. I know you were traveling internationally after we talked in Kentucky, so I thought I would follow up again as a resource and see what we need to do. I will be in DC a few times over the next month. Maybe we can sit and talk further.

Matt

KENTUCKY POWER
MATTHEW J SATTERWHITE | PRESIDENT & COO - KY
MJSATTERWHITE@AEP.COM | D:606.327.2601 | C: (b) (6)
855 CENTRAL AVENUE, ASHLAND, KY 41101

---

**From:** Matthew J Satterwhite
**Sent:** Friday, April 06, 2018 10:32 AM
**To:** 'brian.mccormack@hq.doe.gov'
**Cc:** Anthony P Kavanagh
**Subject:** Appalachian Sky (American Electric Power)

Brian,

It was good meeting you yesterday in Hopkinsville. I know we were not able to continue the conversation on Appalachian Sky over lunch as we had hoped, but I understand you have at least 1,000 duties as Chief of Staff. But I am eager to see what changes I can make to the Order we wrote to fit what we talked about.

I heard your input that we should look for a way to expand the goal to reach other issues impacting Appalachia- opioids, workforce, and infrastructure as examples. Things that help provide purpose for the different cabinet offices. I think I



AMERICAN OVERSIGHT

have an idea on doing that and can provide a redline for you or we can talk further and then I can propose ideas. Let me know how I can make it as efficient as possible and provide a better product so that when Joe Craft sends his letter to the President urging him to sign the Order that we have the best product.

I know the Order has been through the VPs office and Commerce and the Kentucky Governor's office so I am not sure what version to work from to make changes. I am attaching a version I made some changes late last year to show it was a partnership with coal. This went to Commerce Sec Ross but I am not sure if this is the version you have or not. We should compare so I am starting from the one being shared in DC.

I will start working from this version but let me know ASAP if there is a new version and the best way to partner on this effort right now. I think this can be part of any upcoming announcement on diversification in Appalachia and know it will have an impact on the economy.

I copied Tony Kavanagh on this too so you have more access to us for any needs and because he is in touch with the Business Roundtable efforts.

KENTUCKY POWER
AEP

MATTHEW J SATTERWHITE | PRESIDENT & COO - KY
MJSATTERWHITE@AEP.COM | D:606.327.2601 | C (b) (6)
855 CENTRAL AVENUE, ASHLAND, KY 41101



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:00 AM
**To:** Brooke, Francis J. EOP/WHO
**Subject:** FW: Solar manufacturing prize press release
**Attachments:** EERE Solar Prize Rules Press Release V2.docx

Francis-

FYI we're getting ready to announce this. The idea of the prize came up back when the solar 201 case came up at USTR. Want to flag for your awareness.

---

**From:** Fitzsimmons, Alexander
**Sent:** Monday, June 04, 2018 10:16 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Solar manufacturing prize press release

Brian,

Per our discussion, attached is the solar manufacturing prize press release.

-Alex



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:07 AM
**To:** Deidre Almstead (Deidre.Almstead@hq.doe.gov);Gerdes, Stan
**Subject:** FW: Mtg // S1 Briefing

For scheduling.

---

**From:** Lira, Mathew L. EOP/WHO [mailto:(b) (6)
**Sent:** Monday, June 04, 2018 10:25 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Mtg // S1 Briefing

Brian –

(b) (5)

Wanted to put on your radar early, given the Secretary's busy schedule; happy to have the briefing at his office or facilitate office space over here if helpful. Hope all is going well.

Best,
Matt



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:07 AM
**To:** Varnasidis, Sophia
**Subject:** RE: pls call at your convenience. thanks. (b) (6)

Sounds good. I think Mark and I need to sit down and go through outreach list.

---

**From:** Varnasidis, Sophia
**Sent:** Monday, June 04, 2018 10:59 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: pls call at your convenience. thanks. (b) (6)

Ok I'm mtg. Will stop by when done

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:58 AM
**To:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** pls call at your convenience. thanks. (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:20 AM
**To:** Wallwork, Luke
**Subject:** FW: S1 DOE Cyber -- latest
**Attachments:** S1 DOE Cyber Conference June 2018PjrnPL (002)_(Zead.6.1)PL + BT.docx

I had received.

---

**From:** Naughton, Janet
**Sent:** Monday, June 04, 2018 10:39 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: S1 DOE Cyber -- latest

Was sent to you Friday at 3:07pm.

---

**From:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 3:07 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: S1 DOE Cyber -- latest

Dan,

Bill cleared and edited so ready for your review.

Janet

-----Original Message-----
From: Turenne, William
Sent: Friday, June 01, 2018 3:04 PM

My edits for the new language insertion are tracked in the attached.

Two things:

(b) (5)

This is ready for FO review and edit.

Thanks all,
Bill

-----Original Message-----
From: Naughton, Janet
Sent: Friday, June 01, 2018 2:27 PM



AMERICAN OVERSIGHT

To: Liben, Paul <Paul.Liben@hq.doe.gov>; Haddad, Zead <Zead.Haddad@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Subject: RE: S1 DOE Cyber -- latest

Did you send it back with inserted language? Please.

-----Original Message-----
From: Liben, Paul
Sent: Friday, June 01, 2018 1:43 PM
To: Haddad, Zead <Zead.Haddad@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Cc: Naughton, Janet <Janet.Naughton@hq.doe.gov>
Subject: RE: S1 DOE Cyber -- latest

(b) (5)

Thanks.

-----Original Message-----
From: Haddad, Zead
Sent: Friday, June 01, 2018 1:27 PM
To: Liben, Paul <Paul.Liben@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Cc: Naughton, Janet <Janet.Naughton@hq.doe.gov>
Subject: RE: S1 DOE Cyber -- latest

Bill, let us know if you approve of the new language.

Thank you.

-----Original Message-----
From: Liben, Paul
Sent: Friday, June 01, 2018 1:24 PM
To: Haddad, Zead <Zead.Haddad@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Subject: S1 DOE Cyber -- latest

Zead and Bill,

See attached....two copies, one redlined, the other clean.

Bill, I'm sending to you and Zead at once due to the time constraint Zead mentioned.

Thanks.

Paul



AMERICAN OVERSIGHT

Document 91

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:21 AM
**To:** S1 Schedule
**Subject:** Accepted: Meeting with Tom Linebarger, CEO of Cummins



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:21 AM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

Steve-

Have any preferred times this week?

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Friday, June 01, 2018 10:27 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: Secretary Perry/ LLA

Can't do today. Crazy because of these idiotic tariffs.

Let's shoot for next week.

Sent from my BlackBerry 10 smartphone.

---

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 1:00 PM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

We did not. Do you have preferred times tomorrow or Friday? I should be able to make most anything work.

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Wednesday, May 30, 2018 11:29 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Secretary Perry/ LLA

Brian, did we set up a time for me to come over to discuss the coal/nuclear issue? Looking forward to getting together with your team.

Steve

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Thursday, May 24, 2018 10:27 AM



AMERICAN OVERSIGHT

**To:** Moore, Steve <Steve.Moore@heritage.org>
**Subject:** RE: Secretary Perry/ LLA

Sir,

Checking to see what your availability is to connect on this issue. Thank you.

Brian

---

**From:** McCormack, Brian
**Sent:** Monday, May 21, 2018 10:04 AM
**To:** 'steve.moore@heritage.org' <steve.moore@heritage.org>
**Subject:** Secretary Perry/ LLA

Steve,

It was good to run into you again at the Laffer meeting last week. As promised, attached is a copy of Secretary Perry's remarks (these are not for distribution). Also, here is the link to one story in Forbes and pasted below is another from E&E on the topic. Please let me know any available times on your schedule this week so we can try and reconnect in person.

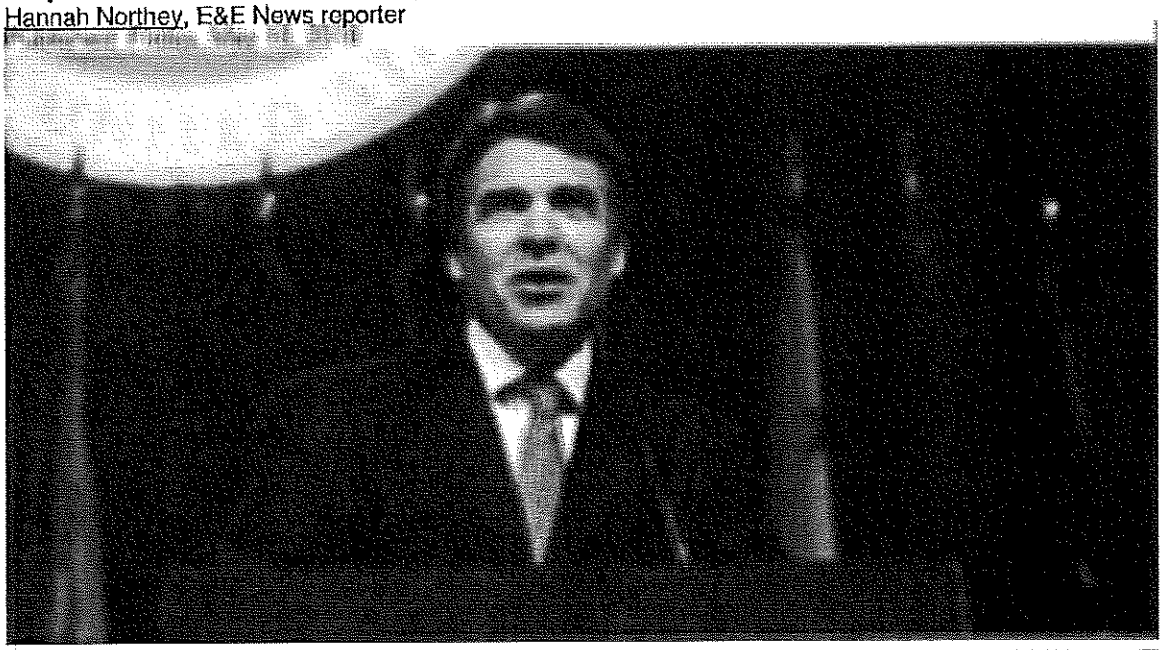
Best,
Brian

(b) (6) office
(b) (6) mobile

## E&E: WHITE HOUSE

## Top aides not considering rescue for coal, nuclear — source

Hannah Northey, E&E News reporter



Energy Secretary Rick Perry is considering policies to save coal and nuclear plants. Staff Sgt. Jim Greenhill/U.S. Army/Flickr



AMERICAN OVERSIGHT

The National Security Council is leading a new search for policies to safeguard the U.S. electric grid — talks that won't include efforts to subsidize specific coal and nuclear plants, said a senior Energy Department official.
The NSC Deputies Committee is helming discussions about what steps should be taken to ensure the U.S. energy system — transmission, pipelines, power plants and more — remains resilient in the face of cyberattacks, storms and other threats.
What's not included: subsidies for any particular type of generation, including ailing nuclear and coal plants that have been asking the agency for financial lifelines. The administration is leaving that option to Congress, said the official, who asked to remain anonymous.
Discussions unfolding on the panel — currently being led by Mira Ricardel, a deputy to White House national security adviser John Bolton — are focused on defense and resilience, not economics, said the official.
The NSC is President Trump's principal forum for considering national security and foreign policy matters with his senior national security advisers and Cabinet officials. DOE is a permanent member of the council.
Advertisement
Ricardel, who served as a former defense aide to Trump's campaign and worked in the Pentagon under the George W. Bush administration, is leading the committee, which also includes DOE Deputy Secretary Dan Brouillette, Deputy Secretary of State John Sullivan and Deputy Attorney General Rod Rosenstein, among others.
The official said the committee could formulate recommendations soon.
Current policy levers on the table — as part of a broader discussion within the standard White House policy process focused on critical infrastructure writ large — include the Defense Production Act of 1950, the Fixing America's Surface Transportation (FAST) Act of 2015 and the Energy Policy Act, said the official.
Even though such policies are being considered, the official reiterated the panel is not suggesting there is any economic emergency and said no singular company's situation would be factored into any recommendations that may be produced.
When asked what recommendations discussions could generate, the official said it's not yet clear, nor is there a definitive timeline.
The official confirmed DOE is in the process of identifying defense-critical electric infrastructure under the FAST Act — a move Bruce Walker, DOE's assistant secretary for electricity delivery and energy reliability, shared with grid overseers last week (*Energywire*, May 11).
Walker said that law directed DOE to "identify what the defense-critical electric infrastructure was in the United States."
When asked whether that designation could lead to financial support, the DOE official said simply pointing out that a facility is important to the grid doesn't equate to a subsidy.
The official's comments offer a sharp contrast to a steady stream of reports of the administration considering the statutes to throw certain facilities a financial lifeline.
Separate from the NSC discussions is a direct request from an Ohio-based utility for DOE to directly intervene using federal statute.
In late March, FirstEnergy Corp.'s generating subsidiary made a formal request for the department to use its authority under Section 202(c) of the Federal Power Act to declare a grid emergency and direct subsidies to unprofitable coal and nuclear plants.
DOE is still reviewing that application.
A number of grid experts have warned that protecting the power grid by subsidizing coal and nuclear misses other important threats and ignores more affordable and effective defenses (*Energywire*, May 3).

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:34 AM
**To:** (b) (6)
**Subject:** RE: (b) (6)

(b) (6)

I just wanted to connect with you. Our WH Liaison office informed me they had tried reaching out to you with regards to coming in for an interview. (b) (6)

Thank you.

---

**From:** (b) (6) [mailto:(b) (6)
**Sent:** Wednesday, May 23, 2018 1:54 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** (b) (6)

Hi Brian,

I apologize -- I just noticed this email was stuck in my Outbox on my phone! (b) (6)

Thank you again,
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:44 AM
**To:** Uddo, Joe
**Subject:** RE: CI hires

(b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:40 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: CI hires

All for Legislative Affairs Advisor. (b) (6)

-----Original Message-----
From: McCormack, Brian
Sent: Monday, June 04, 2018 11:38 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>
Subject: RE: CI hires

For which positions? (b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:37 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: CI hires

Brian,
(b) (6)

Joe

Joseph F. Uddo III
White House Liaison
U.S. Department of Energy
O: 202.586.3694
Joe.Uddo@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:49 AM
**To:** Habansky, Sarah
**Subject:** FW: (b) (5)

Do you know if anything has been tasked out?

-----Original Message-----
From: McGinley, William J. EOP/WHO [mailto:(b) (6) ]
Sent: Monday, June 04, 2018 11:46 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Staff Secretary <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >
Subject: (b) (5)

Brian,

Hope you had a good weekend. (b) (5)

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:03 AM
**To:** Lotto, Adrienne
**Subject:** FW: staff meeting request

Can you have someone connect? Dan is a solid guy.

---

**From:** Dan Meyer [mailto:dmeyer@dubersteingroup.com]
**Sent:** Monday, June 04, 2018 12:02 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** staff meeting request

Hi Brian,

I hope all is well and you are enjoying your time at DOE.

I was hoping you could point me in the right direction to schedule a meeting with the appropriate person at the Department.

In mid-April the DOE announced that the Office of Electricity Delivery and Energy Reliability's Cybersecurity for Energy Delivery Systems (CEDS) program "will seek applications to conduct research, development, and demonstration (RD&D) for innovative approaches to advance cyber resilient energy delivery systems." Here's a copy of the press release: https://www.energy.gov/articles/doe-announces-investment-strengthen-and-secure-nation-s-critical-energy-infrastructure.

I have a client, Accenture, that may have an interest in applying but would like to meet with the appropriate person to get more information. Can you let me know to whom we should reach out?

Thanks.

Dan
**Dan Meyer**
**Duberstein Group**
**202-728-1100**



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:07 AM
**To:** Varnasidis, Sophia
**Cc:** Sanford, Jessica L.
**Subject:** RE: meeting w/S3

Sure does. Want to add in Melissa and Elise? Elise and I had a brief convo about how we're going to need to adjust on the fly due to the document getting out.

-----Original Message-----
From: Varnasidis, Sophia
Sent: Monday, June 04, 2018 12:05 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Sanford, Jessica L. <Jessica.Sanford@hq.doe.gov>
Subject: meeting w/S3

Brian - S3 is free at 1:30, that work for you?

SOPHIA A. VARNASIDIS
Chief of Staff
Office of the Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-0057



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:10 AM
**To:** McGinley, William J. EOP/WHO
**Cc:** Staff Secretary;Mocarski, Ashley D. EOP/WHO;McBride, Emily J. EOP/WHO;Habansky, Sarah
**Subject:** RE: (b) (5)

Yes, we'll have them over.

-----Original Message-----
From: McGinley, William J. EOP/WHO [mailto:William.(b) (6) ]
Sent: Monday, June 04, 2018 11:46 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Staff Secretary (b) (6) ; Mocarski, Ashley D. EOP/WHO (b) (6) ;
McBride, Emily J. EOP/WHO (b) (6)
Subject: (b) (5)

Brian,

Hope you had a good weekend. (b) (5)

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:21 AM
**To:** Burnison, Melissa
**Subject:** Murkowski

Melissa-

Please call when you can. Just want to nail this down if we want S1 to call her today.

Draft:

(b) (5)



AMERICAN OVERSIGHT

Document 100

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 10:06 AM
**To:** Menezes, Mark
**Subject:** Accepted: Mtg to discuss lists



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 10:08 AM
**To:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Edward McGinnis (Edward.McGinnis@Nuclear.Energy.Gov);Jaworowski, Suzanne;Sneed, John;Varnasidis, Sophia
**Subject:** FW: Follow up

Please see below. NE - need input on what are important milestones to consider an event.

-----Original Message-----
From: Anderson, Bryan D. [mailto:BRANDERS@SOUTHERNCO.COM]
Sent: Thursday, May 31, 2018 2:09 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: Follow up

Mr. McCormack I wanted to follow up on some possible milestones for your consideration of a visit to the Vogtle 3/4 Nuclear Facility.

1. End of June 2018 – Close on DOE loan guarantees
2. June 20, 2018<x-apple-data-detectors://0> – Complete Unit 3 Shield Building reinforced concrete
3. August 24, 2018<x-apple-data-detectors://1> – Set Unit 4 Steam Generator B
4. Q1 2019 –Containment Ring 3 / Vessel Top Head / Test Polar Crane

the last option (in bold) would be the most impressive from a construction standpoint; however, the loan guarantee closure could be compelling from a DOE and media perspective?

Please let me know how I can be of further assistance. Thank you.
Bryan Anderson



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 10:23 AM
**To:** (b) (6) (b) (6)
**Subject:** touching base on Qubitekk

Gentlemen,

Shannon Grove recently mentioned to me your efforts. Can you send me your latest background document so that I can share it with some of my colleagues here at the Department of Energy? Thank you.

Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 11:29 AM
**To:** Habansky, Sarah;Wilmot, Dan
**Cc:** Moore, Janelle
**Subject:** RE: FEMA briefing talkers

This has to be 2 mins or less.

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 2:02 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** FW: FEMA briefing talkers
**Importance:** High

For your review already reviewed by Bruce

---

**From:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 1:36 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Moore, Janelle <Janelle.Moore@hq.doe.gov>, Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

With edits

Ken

---

**From:** Lotto, Adrienne
**Sent:** Monday, June 04, 2018 1:16 PM
**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Not sure who has the pen on this.

Per Bruce, (b) (5)



AMERICAN OVERSIGHT

Thanks,

*Adrienne Lotto*

Chief of Staff for Office of Electricity (OE) and
Cybersecurity, Energy Security and Emergency Response (CESER)
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Moore, Janelle
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Thanks so much!

---

**From:** Hoffman, Patricia
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Bruce is reviewing. We will get back to you shortly. Copying Adrienne for awareness.

---

**From:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 12:46 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Good afternoon,

I am checking in on the status of the materials for the briefing book. Dan Wilmot will need to time review the talking points, so just making sure I get them in enough time to circulate. Please advise.

Thank you,
Janelle
-----Original Message-----
From: Buell, Kenneth
Sent: Thursday, May 31, 2018 11:46 AM
To: Moore, Janelle <Janelle.Moore@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>



AMERICAN OVERSIGHT

Subject: RE: FEMA briefing

In work.

Ken

Ken Buell | Director
Emergency Response and Recovery
Infrastructure Security & Energy Restoration (ISER) Division
Office of Electricity Delivery & Energy Reliability (OE)
U.S. Department of Energy

Address: 1E-278 | 1000 Independence Ave SW | Washington, DC 20585
Office: 202-586-3362 | Mobile: (b) (6)
Email: kenneth.buell@hq.doe.gov

-----Original Message-----
From: Moore, Janelle
Sent: Thursday, May 31, 2018 11:18 AM
To: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA briefing

Hello,

Please find attached the memo template, for your reference. Also, I realize this is a speedy turnaround, but please send the materials to me by 10:00 a.m. on Monday.

Thank you,
Janelle
6-1726

-----Original Message-----
From: Streit, Devon (Lisa) HQ
Sent: Thursday, May 31, 2018 11:07 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

We'll take care of it. Ken, please take the lead. D.

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 11:04 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

Thanks - looping on Janelle who is handling the book next Wednesday.

-----Original Message-----



AMERICAN OVERSIGHT

From: Hoffman, Patricia
Sent: Thursday, May 31, 2018 11:00 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Subject: RE: FEMA briefing

Devon Streit. Pat.

Patricia Hoffman
Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 10:26 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Subject: FEMA briefing

Hi Pat-

S1 has a 2018 Hurricane Preparedness Briefing at FEMA next Wednesday. Who from your office would I reach out to for materials needed for his book and pre-brief?

Thanks
Sarah



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:12 PM
**To:** Thompson, Ryan
**Subject:** RE: Cobra Energy CEO - Puerto Rico - meeting request

Ryan-

The appropriate person to connect with on PREPA matter is Walt Higgins. He is the CEO of PREPA and his contact information is whiggins@prepa.com or 787-521-4666.

---

**From:** Thompson, Ryan [mailto:thompsonr@akingump.com]
**Sent:** Monday, June 04, 2018 2:55 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Cobra Energy CEO - Puerto Rico - meeting request

Brian,

I hope you are well! As I mentioned previously, we represent Cobra Energy - an Oklahoma based transmission company that is rebuilding the Puerto Rico electrical grid.

On June 12th and 13th, Arty Straehla, the CEO of Mammoth Energy, and Keith Ellison, the President of its subsidiary Cobra, will be in D.C. and available to discuss Cobra's work in Puerto Rico restoring the electric grid. I am reaching out to see if we could schedule a meeting with you to answer any questions and also talk a bit more about their incredible work on the island.

They are currently available on next Tuesday (6/12) or Wednesday (6/13).

https://www.mammothenergy.com/cobra-energy

Do you have time for a quick meeting with Arty and Keith?

Thanks in advance for your consideration!

-Ryan

**Ryan Day Thompson**
**AKIN GUMP STRAUSS HAUER & FELD LLP**
Mobile: +1(b) (6) | thompsonr@akingump.com | akingump.com | Bio

The information contained in this e-mail message is intended only for the personal and confidential use of the recipient(s) named above. If you have received this communication in error, please notify us immediately by e-mail, and delete the original message.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:13 PM
**To:** Habansky, Sarah
**Subject:** FW: FOR REVIEW: FEMA HUD Remarks/TPs
**Attachments:** 20180603_SOHUD Talking Points for June 6 FEMA Hurricane Season Kickoff E....docx

An example...

---

**From:** Staff Secretary [mailto:(b) (6) ]
**Sent:** Monday, June 04, 2018 3:01 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <DL.LEGAFFAIRS.StaffSec@whmo.mil>; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Staff Secretary <(b) (6) >; McGinley, William J. EOP/WHO <(b) (6) >; Policy Coordinator <(b) (6) >
**Subject:** FOR REVIEW: FEMA HUD Remarks/TPs

Attached for your review are Sec. Carson's remarks for Wednesday's meeting at FEMA.

Please review and send any comments/edits by **8 PM tonight**. Affirmative clearance requested from **NSC, WHCO, and DHS**.

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:21 PM
**To:** Kolb, Ingrid
**Subject:** ready for pick up



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:27 PM
**To:** Uddo, Joe
**Subject:** RE: CI hires

Has a Leg Advisor role been discussed (b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:40 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: CI hires

All for Legislative Affairs Advisor. (b) (6)

-----Original Message-----
From: McCormack, Brian
Sent: Monday, June 04, 2018 11:38 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>
Subject: RE: CI hires

For which positions? (b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:37 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: CI hires

Brian,
You met with (b) (6) . Are you ok with all of them?

Joe

Joseph F. Uddo III
White House Liaison
U.S. Department of Energy
O: 202.586.3694
Joe.Uddo@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:02 PM
**To:** Maddox, Mark
**Subject:** do you have contact information for Charles McConnell at RICE?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:05 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Will do.

---

**From:** Joan Avagliano [mailto:JAvagliano@dgi-nyc.com]
**Sent:** Monday, June 04, 2018 4:09 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** June 8

Yes, Brian, Friday, June 8 would be the date for the joint announcement with Ms. Rometty and Secretary Perry / if you get clearance today would you let us know? or of course when you do hear?
Many thanks.
Joan



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:06 PM
**To:** Uddo, Joe
**Cc:** Wilmot, Dan
**Subject:** RE: (b) (6)

Not that I recall

---

**From:** Uddo, Joe
**Sent:** Monday, June 04, 2018 4:05 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: (b) (6)

Have either of you guys had any interaction with this person (b) (6) Possible detail.

---

**From:** Tripodi, Cathy
**Sent:** Monday, June 04, 2018 3:58 PM
**To:** Uddo, Joe <Joe.Uddo@hq.doe.gov>
**Subject:** (b) (6)

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:16 PM
**To:** Hrkman, Lou;Bolton, Dwayne S.
**Subject:** connecting you both

**Dwayne – meet Lou. You both should connect when convenient.**

**Lou Hrkman**
Policy Adviser
Congressman David B. McKinley, P.E. (WV-01)
2239 Rayburn House Office Building
Washington, DC 20515
(202) 225-4172






AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:19 PM
**To:** Harbin, Christine;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Gerdes, Stan
**Cc:** Lotto, Adrienne
**Subject:** RE: Government Day at the World Gas Conference

Stan and Deidre – is this on our list of events during WGC?

---

**From:** Harbin, Christine
**Sent:** Monday, June 04, 2018 4:07 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** FW: Government Day at the World Gas Conference

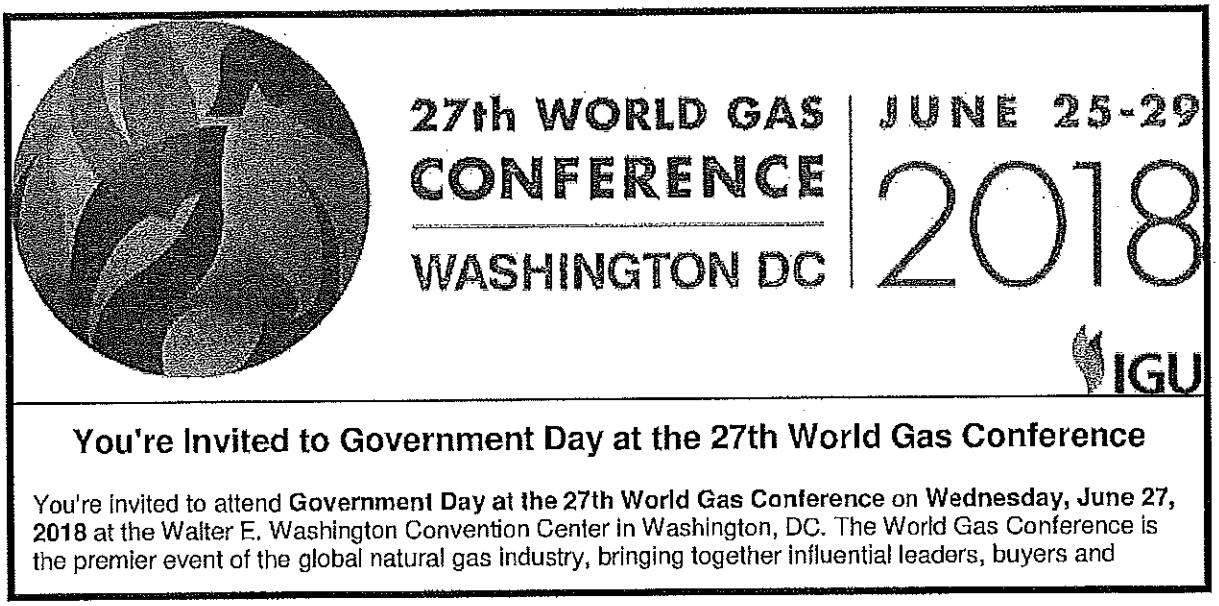
Hi Brian -- Is the Secretary hosting a reception during the AGA, and, if so, may Bruce please attend? Thanks for considering. -- Chrissy.

---

**From:** Jenkins, Erica [mailto:EJenkins@aga.org]
**Sent:** Tuesday, May 29, 2018 3:08 PM
**To:** Harbin, Christine <Christine.Harbin@hq.doe.gov>
**Subject:** FW: Government Day at the World Gas Conference

Christine,

That is great news. I would love to register for you all but it is out of my control and they will have very strict rules about everyone registering through the link below due to security. If you could please have everyone register using the link below you will all be set to attend the June 27th Government Day Events. Let me know if this is an issue.






AMERICAN OVERSIGHT

sellers, policy-makers and experts from around the world.

Government Day attendees will have the opportunity to meet with key members of the natural gas industry and to tour the conference exhibition. There will be a lunch reception and an evening reception for attendees as well. Registration for one or both events is available.

**Lunch Reception and Exhibition Tours**
**11:30 a.m. – 1:30 p.m.**
**Where:** Walter E. Washington Convention Center: Room 156
Brief remarks will be made at a lunch reception followed by tours of the exhibition hall.

**Evening Reception and Exhibition Tours**
**4:30 p.m. – 6:00 p.m.**
**Where:** Walter E. Washington Convention Center: American Gas Association booth (#2600) at the entrance of the exhibition hall
Attendees will enjoy a reception and will have the opportunity to tour the exhibition hall.

Registration is free, but must be done in advance. For questions, please contact Erica Jenkins at 202-824-7231 or ejenkins@aga.org.

Click here to register online

**World Gas Conference**
**June 25 - 29, 2018**
**Walter E. Convention Center**
**801 Mt .Vernon Place, NW**
**Washington, DC 20001**

Erica Jenkins | AGA Government Relations and Public Affairs
202-824-7231 | ejenkins@aga.org
400 North Capitol Street, NW | Washington, DC 20001
© 2018 American Gas Association
Please click here to unsubscribe

SHARE MORE...

Thanks,

**Erica Jenkins | Manager, Government Relations and Public Affairs**
American Gas Association
400 N. Capitol St., NW | Washington, DC | 20001
P: 202-824-7231 | F: 202-824-9131 | ejenkins@aga.org

The American Gas Association represents more than 200 local energy companies committed to the safe and reliable delivery of clean natural gas to more than 70 million customers throughout the nation.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:21 PM
**To:** Habansky, Sarah
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

We have an update yet?

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 3:19 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

Thanks – I will send it to them

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 3:13 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: FOR REVIEW: FEMA HUD Remarks/TPs

An example...

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Monday, June 04, 2018 3:01 PM
**To:** Sanders, Sarah H. EOP/WHO (b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO (b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO (b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Staff Secretary <(b) (6) >; McGinley, William J. EOP/WHO (b) (6) >; Policy Coordinator <(b) (6) >
**Subject:** FOR REVIEW: FEMA HUD Remarks/TPs

Attached for your review are Sec. Carson's remarks for Wednesday's meeting at FEMA.

Please review and send any comments/edits by **8 PM tonight**. Affirmative clearance requested from **NSC, WHCO, and DHS**.



AMERICAN OVERSIGHT

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:21 PM
**To:** Almstead, Deidre;Haus, Bob;Gerdes, Stan;Turenne, William
**Subject:** RE: Sec. Perry June 25?

sure

**From:** Almstead, Deidre
**Sent:** Monday, June 04, 2018 4:14 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Sec. Perry June 25?

S1 isn't able to participate- we can offer S4- do you want us to reach out to the WH to let them know?

**From:** Haus, Bob <Bob.Haus@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 4:06 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Sec. Perry June 25?

FYI re June 25.

**From:** Weld, Jeff D. EOP/OSTP <(b) (6) >
**Date:** Monday, Jun 04, 2018, 12:29 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>
**Subject:** Sec. Perry June 25?

Good morning Bob,
I'm happy to confirm that Sec. DeVos (ED), Admin. Bridenstine (NASA), Sec. Skorton (Smithsonian) and COO Ferrini-Mundy (N5F) each commit to our Panel on the evening of June 25 at EEOB. (Agenda attached.) Can you please let me know timeline re: Sec. Perry's decision to join us? [Sending same request to Sec. Acosta.]

Thank you,
Jeff

Jeff Weld PhD
Senior Policy Advisor and Assistant Director, STEM Education
Office of Science and Technology Policy
Executive Office of the President
C: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:21 PM
**To:** Mashburn, John;Wilmot, Dan
**Subject:** RE: (b) (6)

(b) (6)

-----Original Message-----
From: Mashburn, John
Sent: Monday, June 04, 2018 4:17 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
Subject: (b) (6)

Brian/Dan -- (b) (6)

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:24 PM
**To:** Habansky, Sarah
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

Call Adrienne

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 4:23 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

I have emailed and called Pat and Adrienne saying we need them. I also sent the HUD sample

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:21 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

We have an update yet?

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 3:19 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

Thanks – I will send it to them

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 3:13 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: FOR REVIEW: FEMA HUD Remarks/TPs

An example...

---

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Monday, June 04, 2018 3:01 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO (b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <Douglas.L.Hoelscher@who.eop.gov>; DL



AMERICAN OVERSIGHT

WHO LEG AFFAIRS Staff Sec <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO (b) (6) ; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Staff Secretary <(b) (6) >; McGinley, William J. EOP/WHO <(b) (6) >; Policy Coordinator <(b) (6)
**Subject:** FOR REVIEW: FEMA HUD Remarks/TPs

Attached for your review are Sec. Carson's remarks for Wednesday's meeting at FEMA.

Please review and send any comments/edits by **8 PM tonight**. Affirmative clearance requested from **NSC, WHCO, and DHS**.

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:25 PM
**To:** Maddox, Mark
**Subject:** RE: Charles D McConnell

Thank you

-----Original Message-----
From: Maddox, Mark
Sent: Monday, June 04, 2018 4:25 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: FW: Charles D McConnell

Here you go!

Mark R. Maddox
Principal Deputy Assistant Secretary
Office of Fossil Energy
U.S. Department of Energy
Ph: 202.586.1619
Email: mrmaddox@hq.doe.gov
S: : (b) (6), (b) (7)(C)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:44 PM
**To:** Garrish, Theodore
**Subject:** FW: hi Brian,

?

---

**From:** Sean Todd <sean@foxpotomac.com>
**Date:** Monday, Jun 04, 2018, 4:40 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** hi Brian,

Hi Brian,

Per my phone message this morning I am emailing to request a brief introductory meeting on behalf of Holtec International; Holtec is the largest US exporter of nuclear components and technology, and is helping lead the resurgence of the US nuclear industry with its presence at half of the US nuclear reactors, its consolidated interim storage efforts in New Mexico as well as financing its own small modular reactor.

The lead for the Government business unit, Myron Kaczmarsky, is here in town for the EFCOG meeting, and is available all day tomorrow Tuesday the 5th, most of Wednesday the 6th, and most of Thursday the 7th. We would be pleased to meet with you and pass along our discussions with Mike Catanzarro, Francis Brooke, Mick Mulvaney on issues for the White House Nuclear Review as well as share our perspectives on job creation, manufacturing in the nuclear industry, and nuclear exports.

Thanks very much for your assistance, and I look forward to our continued dialogue.

Warm regards,
Sean Todd

P.S. we met briefly during your meeting with NIC earlier this year, and we have loads of mutual colleagues, incl my friends & neighbors, (b) (6) and I have been friends for many years.

*Sean Todd*
*Fox Potomac Resources LLC*
*Founder/President*
*644 Massachusetts Avenue, NE*
*Suite 505*
*Washington, DC 20002*

*V: 202.543.0808*
*M:* (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:02 PM
**To:** Wilmot, Dan;Hynes, Shaylyn
**Cc:** Turenne, William;Habansky, Sarah;Gerdes, Stan
**Subject:** RE: CNBC opportunity on June 8

(b) (5)

---

**From:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 2:50 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

(b) (5)

(b) (5)

---

**From:** Hynes, Shaylyn
**Sent:** Monday, June 04, 2018 2:36 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

Yes. CNBC interview with ibm ceo would be in lieu of the media availability.

(b) (5)

---

**From:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 1:34 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

(b) (5)



AMERICAN OVERSIGHT

**From:** Hynes, Shaylyn
**Sent:** Monday, June 04, 2018 2:28 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: CNBC opportunity on June 8

Brian/dan

(b) (5)

---

**From:** McCorkle, Morgan L. <mccorkleml@ornl.gov>
**Date:** Monday, Jun 04, 2018, 1:12 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>, Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** Re: CNBC opportunity on June 8

Hi Shaylyn, Sarah – Apologies for bugging you again. (b) (5)

Thanks,
Morgan

---

**From:** "Hynes, Shaylyn" <Shaylyn.Hynes@hq.doe.gov>
**Date:** Monday, June 4, 2018 at 10:50 AM
**To:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>, "Habansky, Sarah" <Sarah.Habansky@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

Thanks Morgan. Apologies for the delay. I am traveling with the secretary and we are extremely understaffed this week, I will call you tomorrow morning to hammer this all out. My colleague, Sarah habansky will be helping me with Friday now so please loop her in on emails moving forward.

(b) (6) Sarah may have availability to get a status check on where things stand today, but I Look forward to chatting tomorrow!

---

**From:** McCorkle, Morgan L. <mccorkleml@ornl.gov>
**Date:** Monday, Jun 04, 2018, 9:42 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>



AMERICAN OVERSIGHT

**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Hi Shaylyn, Bill –

(b) (5)

We await your guidance.

Morgan

---

**From:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018 at 10:20 PM
**To:** "Hynes, Shaylyn" <Shaylyn.Hynes@hq.doe.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Thanks, Shaylyn. I hope your travel with S-1 is going smoothly! Another quick question:

(b) (5)

Thanks!
Morgan

---

**From:** "Hynes, Shaylyn" <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018 at 4:28 PM
**To:** "Turenne, William" <William.Turenne@hq.doe.gov>, "McCorkle, Morgan L." <mccorklemL@ornl.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>
**Subject:** RE: CNBC opportunity on June 8

Hi there- I am on travel, (b) (5)
Will get back with you tomorrow! Thanks!



AMERICAN OVERSIGHT

**From:** Turenne, William <William.Turenne@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 3:09 PM
**To:** McCorkle, Morgan <mccorkleml@ornl.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>
**Subject:** RE: CNBC opportunity on June 8

That's a Shaylyn question. (b) (5)

---

**From:** McCorkle, Morgan L. <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018, 4:01 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Bill – Quick follow-up. (b) (5)

Thanks,
Morgan

---

**From:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018 at 3:34 PM
**To:** "Hynes, Shaylyn (HQ)" <shaylyn.hynes@hq.doe.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Bill – Thanks for the call just now.

Vineeta – (b) (5)

Morgan

---

**From:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018 at 2:07 PM
**To:** "Hynes, Shaylyn (HQ)" <shaylyn.hynes@hq.doe.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>
**Subject:** CNBC opportunity on June 8

Shaylyn, Bill –

I'd like to introduce you to Vineeta Durani, IBM VP for Marketing & Communications, copied here. (b) (5)



AMERICAN OVERSIGHT

(b) (5)

Thanks,
Morgan

**Morgan McCorkle**
Media Relations Manager
Oak Ridge National Laboratory
Office: 865-574-7308
Cell:(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:25 PM
**To:** Colgary, James
**Subject:** RE: DOE/FERC

I have no idea.

---

**From:** Colgary, James <James.Colgary@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:17 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: DOE/FERC

Any idea what Anthony wants to talk about? (b) (5)

---

**From:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Date:** Monday, Jun 04, 2018, 5:09 PM
**To:** Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** DOE/FERC

Good afternoon Jim,
I was wondering if you would mind giving me a call when you have a moment? Thank you in advance and my number is (b) (6)

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:41 PM
**To:** Habansky, Sarah;Tripodi, Cathy;Wilmot, Dan;Haus, Bob;Hynes, Shaylyn;Turenne, William;Almstead, Deidre;Gerdes, Stan;Wallwork, Luke
**Subject:** RE: CNBC Request for Joint Interview from Oak Ridge with Secretary + IBM CEO Ginni Rometty

(b) (5)

---

**From:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:27 PM
**To:** Tripodi, Cathy <Cathy.Tripodi@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Subject:** RE: CNBC Request for Joint Interview from Oak Ridge with Secretary + IBM CEO Ginni Rometty

Shaylyn is having email issues but is running the request through the channels currently

---

**From:** Tripodi, Cathy <Cathy.Tripodi@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:22 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** CNBC Request for Joint Interview from Oak Ridge with Secretary + IBM CEO Ginni Rometty

Hi All:

(b) (5)

IBM needs confirmation tonight, June 4, as to whether Secretary Perry can do a joint CNBC interview with IBM CEO Ginni Rometty. (b) (6)

Please let me know your thoughts.



AMERICAN OVERSIGHT

Thank you,
Cathy T.
202.586.5050



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:42 PM
**To:** Habansky, Sarah;Wilmot, Dan
**Subject:** RE: FEMA briefing

Go for it

---

**From:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:41 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FEMA briefing

Do you need me to send them to WH ?

---

**From:** Wilmot, Dan
**Sent:** Monday, June 04, 2018 5:41 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** RE: FEMA briefing

Much better

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:39 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** RE: FEMA briefing

Boring but I'm fine. Looping in Dan

---

**From:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:18 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: FEMA briefing

---

**From:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:17 PM



AMERICAN OVERSIGHT

**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Buell, Kenneth <Kenneth.Buell@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Moore, Janelle <Janelle.Moore@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Please see attached.

*Patricia Hoffman*
Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 4:25 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing
**Importance:** High

All just circling back on this – Brian needs these by 5pm in a shorter form. Apologies for the changes and several emails

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 3:17 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Here is an example of HUD – fairly short

---

**From:** Buell, Kenneth
**Sent:** Monday, June 04, 2018 1:37 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

With edits

Ken

---

**From:** Lotto, Adrienne
**Sent:** Monday, June 04, 2018 1:16 PM



AMERICAN OVERSIGHT

**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Not sure who has the pen on this.

(b) (5)

Thanks,

*Adrienne Lotto*

Chief of Staff for Office of Electricity (OE) and
Cybersecurity, Energy Security and Emergency Response (CESER)
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Moore, Janelle
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Thanks so much!

---

**From:** Hoffman, Patricia
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Bruce is reviewing. We will get back to you shortly. Copying Adrienne for awareness.

---

**From:** Moore, Janelle <Janelle.Moore@hq.doe.gov>



AMERICAN OVERSIGHT

**Date:** Monday, Jun 04, 2018, 12:46 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Good afternoon,

I am checking in on the status of the materials for the briefing book. Dan Wilmot will need to time review the talking points, so just making sure I get them in enough time to circulate. Please advise.

Thank you,
Janelle
-----Original Message-----
From: Buell, Kenneth
Sent: Thursday, May 31, 2018 11:46 AM
To: Moore, Janelle <Janelle.Moore@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA briefing

In work.

Ken

Ken Buell | Director
Emergency Response and Recovery
Infrastructure Security & Energy Restoration (ISER) Division
Office of Electricity Delivery & Energy Reliability (OE)
U.S. Department of Energy

Address: 1E-278 | 1000 Independence Ave SW | Washington, DC 20585
Office: 202-586-3362 | Mobile: (b) (6)
Email: kenneth.buell@hq.doe.gov

-----Original Message-----
From: Moore, Janelle
Sent: Thursday, May 31, 2018 11:18 AM
To: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA briefing

Hello,

Please find attached the memo template, for your reference. Also, I realize this is a speedy turnaround, but please send the materials to me by 10:00 a.m. on Monday.

Thank you,
Janelle
6-1726

-----Original Message-----



AMERICAN OVERSIGHT

From: Streit, Devon (Lisa) HQ
Sent: Thursday, May 31, 2018 11:07 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

We'll take care of it. Ken, please take the lead. D.

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 11:04 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

Thanks - looping on Janelle who is handling the book next Wednesday.

-----Original Message-----
From: Hoffman, Patricia
Sent: Thursday, May 31, 2018 11:00 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Subject: RE: FEMA briefing

Devon Streit. Pat.

Patricia Hoffman
Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 10:26 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Subject: FEMA briefing

Hi Pat-

S1 has a 2018 Hurricane Preparedness Briefing at FEMA next Wednesday. Who from your office would I reach out to for materials needed for his book and pre-brief?

Thanks
Sarah



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:10 PM
**To:** dvandongen@naw.org
**Subject:** FW: Statement by the President

---

**From:** White House Press Office <whitehouse-noreply@messages.whitehouse.gov>
**Date:** Monday, Jun 04, 2018, 6:59 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** Statement by the President

THE WHITE HOUSE
Office of the Press Secretary

FOR IMMEDIATE RELEASE
JUNE 4, 2018

**Statement by the President**

The Philadelphia Eagles are unable to come to the White House with their full team to be celebrated tomorrow. They disagree with their President because he insists that they proudly stand for the National Anthem, hand on heart, in honor of the great men and women of our military and the people of our country. The Eagles wanted to send a smaller delegation, but the 1,000 fans planning to attend the event deserve better. These fans are still invited to the White House to be part of a different type of ceremony — one that will honor our great country, pay tribute to the heroes who fight to protect it, and loudly and proudly play the National Anthem. I will be there at 3:00 p.m. with the United States Marine Band and the United States Army Chorus to celebrate America.

###

---

Unsubscribe

The White House · 1600 Pennsylvania Avenue, NW · Washington DC 20500 · 202-456-1111



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:03 PM
**To:** Storch, Thomas
**Subject:** RE: Emil Argentina June G20

Thanks, (b) (5)

---

**From:** Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 6:03 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Emil Argentina June G20

Brian – I spoke with Emil (twice) today; I told him the only private sector engagement at G20 that I'm aware of is on the natural gas day on June 12th which S1 won't be there for.

(b) (5)

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 10:25 AM
**To:** Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Subject:** FW: Emil Argentina June G20

---

**From:** Emil Pena [mailto:emilio@emilpenainterestsinc.com]
**Sent:** Tuesday, May 01, 2018 2:55 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Emil Argentina June G20

Hi Brian, one, I spoke to Secretary Perry last week at a dinner and mentioned the upcoming G20 meeting in Bariloche, Argentina in June (13th-15th) for the Energy Meeting. Barbara Humpton, who the Secretary knows and now the new President and CEO of Siemens, was with me and we inquired about the business contingent accompanying him for this meeting. He steered me to you to ask how all that works.



AMERICAN OVERSIGHT

Two, I also mentioned that I'm very familiar with the Vaca Muerta (in the state of Neuquén) production zone, a four hour drive from Bariloche or ½ hour flight, and offered a tour. Mr. Perry was curious since he has never been to Argentina, and having him meet the in-country companies that produce and service the wells would be very cool, either before or after G20. He will receive an invitation from Neuquén offering the tour and transportation (flight). Let me know how to best align this. Thanks, Emil

Emil Peña
713-650-8004





AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:04 PM
**To:** Wilmot, Dan
**Subject:** FW: (b) (6)

(b) (6)

---

**From:** Mendelsohn, Kasia <Kasia.Mendelsohn@nnsa.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:43 PM
**To:** Brian McCormack, Chief of Staff <ChiefofStaff@hq.doe.gov>
**Subject:** (b) (6)

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:03 PM
**To:** Lotto, Adrienne
**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 11:01 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

(b) (5)

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:55 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:54 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:52 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>



AMERICAN OVERSIGHT

**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 4:43 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Detail to CI - (b) (6)

Brian,

See below. I(b) (6)

Please let me know.

Thanks,
A

*Adrienne Lotto*

Chief of Staff for Office of Electricity (OE) and
Cybersecurity, Energy Security and Emergency Response (CESER)
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Brown Shute, Theresa
**Sent:** Monday, June 04, 2018 3:42 PM
**To:** Lee, Terri <Terri.Lee@hq.doe.gov>; Richardson, Arlene <Arlene.Richardson@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

Adrienne-

(b) (6)

Thank you,

Theresa

**Theresa Brown Shute**
*Workforce Development Team*
*Corporate Business Operations*
Office of Electricity (OE)
Room: 6E-092



AMERICAN OVERSIGHT

Office: 202-586-2841
Fax: 202-586-5860
theresa.brownshute@hq.doe.gov

---

**From:** Lee, Terri
**Sent:** Monday, June 04, 2018 3:38 PM
**To:** Brown Shute, Theresa <Theresa.BrownShute@hq.doe.gov>; Richardson, Arlene <Arlene.Richardson@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

Per Adrienne,

(b) (6)

Terri

---

**From:** Brown Shute, Theresa <Theresa.BrownShute@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 3:11 PM
**To:** Lee, Terri <Terri.Lee@hq.doe.gov>, Richardson, Arlene <Arlene.Richardson@hq.doe.gov>
**Subject:** FW: Detail to CI - (b) (6)

(b) (6)

Theresa

Theresa Brown Shute
Workforce Development Team
Corporate Business Operations
Office of Electricity (OE)
Room: 6E-092
Office: 202-586-2841
Fax: 202-586-5860
theresa.brownshute@hq.doe.gov

-----Original Message-----
From: Mendoza, Jennifer
Sent: Monday, June 04, 2018 3:06 PM
To: Brown Shute, Theresa <Theresa.BrownShute@hq.doe.gov>
Subject: Detail to CI -(b) (6)

Hi Theresa,

(b) (6)

Thanks!

Jennifer Mendoza
Office of Corporate Executive Management
Office of the Chief Human Capital Officer
U.S. Department of Energy



AMERICAN OVERSIGHT

Forrestal Building, 4E-084
Jennifer.Mendoza@hq.doe.gov | 202.586.7056



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 5:49 AM
**To:** Atkins, Elise
**Subject:** RE: Pre decisional-draft-call

I can do after 2 as well.

---

**From:** Atkins, Elise
**Sent:** Tuesday, June 05, 2018 8:26 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Pre decisional-draft-call

Still going straight to her voicemail.
If yordonas is back I'll work with her to set something up once I get Michelle.

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Tuesday, Jun 05, 2018, 7:57 AM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Subject:** RE: Pre decisional-draft-call

Want to see if she can do 9 am?

---

**From:** Atkins, Elise
**Sent:** Tuesday, June 05, 2018 7:05 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Pre decisional-draft-call

FYI Voicemail from and cell number for Michelle. Can I set up a time for us to call her today?
But her number for you nonetheless. I will send it to Sarah for the list also.

---

**From:** Cisco Unity Connection Messaging System <unityconnection@voice.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:07 PM
**To:** elise.atkins@voice.doe.gov <elise.atkins@voice.doe.gov>
**Subject:** Voicemail from (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 6:21 AM
**To:** Rich Powell
**Subject:** RE: touching base

Thanks for the quick response. 4:30 works for me. Direct dial is (b) (6)

**From:** Rich Powell [mailto:powell@clearpath.org]
**Sent:** Tuesday, June 05, 2018 9:17 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: touching base

Hi Brian,

Good to hear from you. Of course. Any chance you're free at 4:30? Alternatively, between 3 and 4?

Best,
Rich

On Tue, Jun 5, 2018 at 9:12 AM McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Rich-
>
> Good morning. I wanted to see if you had time to talk this afternoon on a DOE project.
>
> Best,
> Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 7:46 AM
**To:** Wallwork, Luke
**Subject:** RE: Lunch with Taylor Eighmy/Hurd memo

Ok. (b) (5)

---

**From:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Date:** Tuesday, Jun 05, 2018, 10:40 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Lunch with Taylor Eighmy/Hurd memo

Fyi- (b) (5) But the memo is attached
info below:

**Specific Issue Congressman Hurd Would Like to Discuss:**

University of Texas San Antonio (UTSA) is interested in partnering with DOE CESER on the work UTSA is doing in the field of Cybersecurity, and building the National Security Collaboration Center (NSCC).

- Governmental agencies are calling for greater collaboration to address America's national security infrastructure protection. To encourage this, business and local government partners will have direct access to the technical expertise, highly trained students, and specialized facilities that make UTSA a premier cybersecurity program.
- The NSCC has strong partnerships with both the public and private sectors.
- Current federal cyber operations in San Antonio account for more than 7,000 military and civilian jobs.
- The Department is seeking to expand several of our cybersecurity focused training and education events, including CyberFire and our Cyber Defense Competition. The CIO's office and CESER office can connect with your office and UTSA to ensure they are aware of those opportunities.

**Luke Wallwork**
Personal Aide to the Secretary
(C): (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 7:50 AM
**To:** Gerdes, Stan;Almstead, Deidre;Winberg, Steven;Garrish, Theodore
**Subject:** FW: Meeting with Sec. Perry

Scheduling - next week doesn't work. Any time this week?

---

**From:** Lowe, George <GLowe@aga.org>
**Date:** Tuesday, Jun 05, 2018, 10:21 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Meeting with Sec. Perry

Brian –
Hope all is well with you. Dave McCurdy would like to meet with Secretary Perry prior to the World Gas Conference to talk about his speech. Could we get Dave into see him sometime in the next week?

Thanks
George

**George Lowe | Vice President, Governmental Affairs and Public Policy**
American Gas Association
400 N. Capitol St., NW | Washington, DC | 20001
P: 202-824-7020 | F: 202-824-9091 | glowe@aga.org

The American Gas Association represents more than 200 local energy companies committed to the safe and reliable delivery of clean natural gas to more than 70 million customers throughout the nation.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 11:41 AM
**To:** Burnison, Melissa;Dan Wilmot (Dan.Wilmot@hq.doe.gov);Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Bolton, Dwayne S.;Uddo, Joe
**Subject:** TN Trip

Melissa and Dwayne-

Can we do invites to the entire TN delegation for the event on Fr? To attend/participate but we're not adding anyone to the official program.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 11:56 AM
**To:** Joan Avagliano
**Subject:** RE: June 8

Jean- Looks like systems are go for a CNBC interview with IBM and Sec Perry.

---

**From:** Joan Avagliano [mailto:JAvagliano@dgi-nyc.com]
**Sent:** Tuesday, June 05, 2018 9:59 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8

I totally understand.

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Tuesday, June 05, 2018 9:49 AM
**To:** Joan Avagliano
**Subject:** RE: June 8

Will do. As soon as I do I'll let you know. Unfortunately, there are multiple layers of coordination and sign off.

---

**From:** Joan Avagliano <JAvagliano@dgi-nyc.com>
**Date:** Tuesday, Jun 05, 2018, 9:35 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8

Brian Good morning as you can imagine there is great anticipation at IBM so if you hear anything could you let me know? Appreciate all your help.
Thank you
Joan

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Monday, June 04, 2018 9:02 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Joan-

Our press office is now in touch with IBM and the Lab on this. Working on making this come together for Friday. Thanks for taking my call earlier. Will let you know when we have it nailed down.

Brian

---

**From:** Joan Avagliano <JAvagliano@dgi-nyc.com>
**Date:** Monday, Jun 04, 2018, 7:08 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8



AMERICAN OVERSIGHT

Thank you

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Monday, June 04, 2018 7:07 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Not yet. Still working on it.

---

**From:** Joan Avagliano <JAvagliano@dgi-nyc.com>
**Date:** Monday, Jun 04, 2018, 6:32 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8

Brian. Presume no word yet but thought I would check in!
Thank you
Joan

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Monday, June 04, 2018 4:05 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Will do.

---

**From:** Joan Avagliano [mailto:JAvagliano@dgi-nyc.com]
**Sent:** Monday, June 04, 2018 4:09 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** June 8

Yes, Brian, Friday, June 8 would be the date for the joint announcement with Ms. Rometty and Secretary Perry / if you get clearance today would you let us know? or of course when you do hear?
Many thanks.
Joan



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 12:09 PM
**To:** Wetzel, Jonathan
**Cc:** Assafe, Yordanos
**Subject:** RE: Meeting Request: (b) (6) 6/5 (b) (6)

Jonathan – I have a conflict now. Can we work on rescheduling?

---

**From:** Wetzel, Jonathan
**Sent:** Monday, June 04, 2018 4:59 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** Meeting Request: (b) (6) 6/5 (b) (6)

Brian,

We would like you to meet with (b) (6) as a candidate for the (b) (6) tomorrow 6/5 at 4:30pm via WebEx.

(b) (6)

Her resume is attached.

Thanks,

**Jonathan Wetzel**
*Deputy White House Liaison*
*U.S. Department of Energy*
*(202) 586-5465*



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:24 PM
**To:** Hynes, Shaylyn
**Subject:** RE: talking points

For what?

-----Original Message-----
From: Hynes, Shaylyn
Sent: Tuesday, June 05, 2018 4:16 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: talking points
Importance: High

Send me the one pager/talking points you drafted for s1 for last week's meeting? I am putting together a quick sheet for tomorrow 's interviews (even though he can talk about this stuff in his sleep..)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:24 PM
**To:** Atkins, Elise
**Subject:** RE:

Yes.

-----Original Message-----
From: Atkins, Elise
Sent: Tuesday, June 05, 2018 4:17 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject:

Plan to walk down and listen in on your 4:30 call, as discussed.

Elise Atkins
Director of External Affairs
Office of Congressional and Intergovernmental Affairs
U.S. Department of Energy
202.586.6873 office
(b) (6) cell



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:26 PM
**To:** Habansky, Sarah
**Subject:** FW: FEMA remarks
**Attachments:** Hurricane Preparedness Talking Points - DOE for FEMA Brief_06062018_ NSC WHCO.docx

**Importance:** High

Please get with OE asap

---

**From:** Salvi, Mary E. EOP/WHO [mailto:(b) (6)
**Sent:** Tuesday, June 05, 2018 3:51 PM
**To:** McGinley, William J. EOP/WHO (b) (6) >; Staff Secretary (b) (6) ; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Mocarski, Ashley D. EOP/WHO (b) (6) >; McBride, Emily J. EOP/WHO (b) (6)
**Subject:** RE: FEMA remarks

DOE –

Attached are edits received to Sec. Perry's remarks tomorrow.

Please send back a clean version for our records as soon as able.

Thanks!

Mary Salvi
Assistant White House Staff Secretary
Desk: (202) 456-3251
Cell: (b) (6)
(b) (6)

---

**From:** McGinley, William J. EOP/WHO
**Sent:** Monday, June 4, 2018 5:44 PM
**To:** Staff Secretary (b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO (b) (6) >; McBride, Emily J. EOP/WHO <(b) (6)
**Subject:** Fwd: FEMA remarks

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

Begin forwarded message:

**From:** "Habansky, Sarah" <Sarah.Habansky@hq.doe.gov>
**Date:** June 4, 2018 at 5:43:07 PM EDT
**To:** "McCormack, Brian" <Brian.Mccormack@hq.doe.gov>, "McGinley, William J. EOP/WHO" <(b) (6) >
**Cc:** Staff Secretary <(b) (6) >, "Mocarski, Ashley D. EOP/WHO" <(b) (6) >, "McBride, Emily J. EOP/WHO" <(b) (6) >
**Subject: RE: FEMA remarks**

Please find attached DOE's talking points.

-----Original Message-----
From: McCormack, Brian
Sent: Monday, June 04, 2018 12:10 PM
To: McGinley, William J. EOP/WHO <(b) (6) >
Cc: Staff Secretary (b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA remarks

Yes, we'll have them over.

-----Original Message-----
From: McGinley, William J. EOP/WHO [mailto:(b) (6)
Sent: Monday, June 04, 2018 11:46 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Staff Secretary <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >
Subject: FEMA remarks

Brian,

Hope you had a good weekend. Wanted to confirm that staff sec and Cab Affairs will be receiving the secretary's draft FEMA remarks for vetting this afternoon.

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:26 PM
**To:** Habansky, Sarah
**Subject:** FW: FOR REVIEW: FEMA Gov. Scott TPs/Remarks
**Attachments:** DRAFT_WH Hurricane Season Briefing.docx

fyi

---

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Tuesday, June 05, 2018 3:27 PM
**To:** Staff Secretary (b) (6) >; Sanders, Sarah H. EOP/WHO (b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO (b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO (b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec (b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO (b) (6) >; Stepien, William EOP/WHO (b) (6) >; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Williams, Meredith <meredith.williams@hq.dhs.gov>
**Subject:** RE: FOR REVIEW: FEMA Gov. Scott TPs/Remarks

Attached is the final version of Gov. Scott's remarks. Please flag any concerns by 5 PM.

---

**From:** Staff Secretary
**Sent:** Monday, June 4, 2018 9:19 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO (b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; 'Bobb, Christina' <christina.bobb@hq.dhs.gov>; 'Comstock, Earl (Federal)' <EComstock@doc.gov>; 'Williams, Allaire (Federal)' <AWilliams2@doc.gov>; 'Hallock.mohler@sd.mil' <Hallock.mohler@sd.mil>; 'Ann.Agnew@hhs.gov' <Ann.Agnew@hhs.gov>; 'Hughes, Andrew' <Andrew.Hughes@hud.gov>; 'Brian.Mccormack@hq.doe.gov' <Brian.Mccormack@hq.doe.gov>; 'Williams, Meredith'



AMERICAN OVERSIGHT

<(b) (6) >
**Cc:** Staff Secretary <(b) (6) >
**Subject:** FOR REVIEW: FEMA Gov. Scott TPs/Remarks

Attached are draft TPs for Gov. Scott (FL) to use during Wednesday's event at FEMA.

Please review and provide edits – for **red flag/error only** – by **10 AM tomorrow, 6/5**.

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:27 PM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** FW: EMP

Let's discuss.

-----Original Message-----
From: Black, Charlie [mailto:Charlie.Black@prime-policy.com]
Sent: Tuesday, June 05, 2018 3:15 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: EMP

I noticed the Secretary's comments about the danger to the grid. We know that one of these is EMP. We believe that Tom King at Oak Ridge is willing to undertake the test that Eric requests. He just needs to hear from you, Dan, Devon, or someone at hq to proceed. Thanks a lot.
Sent from my iPad

---

The information, and any attachments contained in this email may contain confidential and/or privileged information and is intended solely for the use of the intended named recipient(s). Any disclosure or dissemination in whatever form, by another other than the intended recipient is strictly prohibited. If you have received this transmission in error, please contact the sender and destroy this message and any attachments. Thank you.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:28 PM
**To:** Smith, Wayne D;Wilmot, Dan
**Subject:** (b) (5)

Please do

---

**From:** Smith, Wayne D
**Sent:** Tuesday, June 05, 2018 3:00 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: FOR REVIEW: Peter Navarro Op-ed Trade Imbalances
**Importance:** High

(b) (5)

V/r,
Wayne

---

**From:** Staff Secretary [mailto:(b) (6) ]
**Sent:** Tuesday, June 05, 2018 2:06 PM
**To:** Eissenstat, Everett H. EOP/WHO (b) (6) Dolbow, Matthew S. EOP/NSC <(b) (6) >; Haarsager, Mathew P. EOP/NSC <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Ellis, Michael J. EOP/WHO <(b) (6) >; Eisenberg, John A. EOP/NSC (b) (6) >; Knight, Shahira E. EOP/WHO (b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <(b) (6) Greenwood, Daniel Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; McGinley, William J. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP (b) (6) >; Radford, Julie T. EOP/WHO <(b) (6) >; Baitel, Rachael EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Sherk, James B. EOP/WHO <(b) (6) >; EComstock@doc.gov; DL NSC PaperDeputies (b) (6) >; DL NSC WWD (b) (6) >; Sanders, Sarah H. EOP/WHO (b) (6) >; Shah, Raj S. EOP/WHO <(b) (6) >; Gidley, Hogan H. EOP/WHO (b) (6) Walters, Lindsay E. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Nasim, Laura F. EOP/WHO <(b) (6) >; Kennedy, Adam R. EOP/WHO <(b) (6) >; Nordquist, DJ D. EOP/CEA <(b) (6) >; Cobaugh, CC M. EOP/USTR <(b) (6) >; Greer, Jamieson L. EOP/USTR <(b) (6) >; Katherine.Tyrrell@treasury.gov; Ryan.Brady@treasury.gov; Davis, May M. EOP/WHO <(b) (6) >; Joseloff, Benjamin G. EOP/NSC <(b) (6) >; Hallock.mohler@sd.mil; Kratsios, Michael J. EOP/OSTP



AMERICAN OVERSIGHT

<(b) (6) >; Brown, Clinton S <BrownCS@state.gov>; Smith, Wayne D <Wayne.Smith@hq.doe.gov>; Whitaker, Matthew (OAG) <Matthew.Whitaker@usdoj.gov>; Yeager, Demi (OAG) <Demi.Yeager@usdoj.gov>; Miller, Julie L. EOP/OMB <Julie_Miller@omb.eop.gov>; Robbins, Amanda H. EOP/OMB <Amanda.H.Robbins@omb.eop.gov>; Bigley, Mark C. EOP/OMB <Mark.C.Bigley@omb.eop.gov>; Miller, Stephen EOP/WHO <(b) (6) Gabriel, Robert EOP/WHO <(b) (6) >
**Cc:** Staff Secretary <(b) (6) >; Policy Coordinator <(b) (6) >
**Subject:** FOR REVIEW: Peter Navarro Op-ed Trade Imbalances

(b) (5)

Please review and send edits/comments by **9 PM tonight, 6/5**. Affirmative clearance requested from **Commerce, Treasury, USTR, NEC, State, and WHCO**.

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:29 PM
**To:** Kinney, Sara
**Subject:** RE: time to visit?

I'll find a time tomorrow. (b) (6)

-----Original Message-----
From: Kinney, Sara
Sent: Tuesday, June 05, 2018 4:28 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: time to visit?

(b) (6) so 6pm would be pushing it. Happy to be late, but if tomorrow there is some time, that would make it all work.

-----Original Message-----
From: McCormack, Brian
Sent: Tuesday, June 05, 2018 4:27 PM
To: Kinney, Sara <Sara.Kinney@hq.doe.gov>
Subject: RE: time to visit?

Sure. How are you at 6 pm today? Or we can do tomorrow.

-----Original Message-----
From: Kinney, Sara
Sent: Tuesday, June 05, 2018 3:21 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: time to visit?

As a follow up to our impromptu convo last week, do you have a couple of minutes for me in the next day or so?

SMK

Sara Marie Kinney
Deputy Press Secretary
Department of Energy
202-586-7058 (o)
(b) (6) (c)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:15 PM
**To:** Jaworowski, Suzanne;Assafe, Yordanos
**Cc:** Brian McCormack, Chief of Staff
**Subject:** RE: Meeting tomorrow at 9:30 am

Suzie - Is Ed not available?

---

**From:** Jaworowski, Suzanne
**Sent:** Tuesday, June 05, 2018 5:13 PM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Cc:** Brian McCormack, Chief of Staff <ChiefofStaff@hq.doe.gov>
**Subject:** Meeting tomorrow at 9:30 am

Hello Yordanos,

My name is Suzie Jaworowski from the office of nuclear energy.

I am scheduled to participate in a meeting at 9:30 tomorrow morning with Brian McCormack and Bruce Fogerty.

I was not able to change my travel plans to be in Washington in the morning. Could you please provide a call in number for me?

Thank you.

Suzie

P.S. if you need to reach me my cell phone is
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:17 PM
**To:** Atkins, Elise
**Cc:** Assafe, Yordanos
**Subject:** RE: can you move tomorrow with Michelle to anytime between 12 and 3:30?

thanks

-----Original Message-----
From: Atkins, Elise
Sent: Tuesday, June 05, 2018 6:11 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
Subject: RE: can you move tomorrow with Michelle to anytime between 12 and 3:30?

We'll get is rescheduled.

-----Original Message-----
From: McCormack, Brian
Sent: Tuesday, June 05, 2018 6:06 PM
To: Atkins, Elise <Elise.Atkins@hq.doe.gov>
Cc: Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
Subject: can you move tomorrow with Michelle to anytime between 12 and 3:30?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:18 PM
**To:** Uddo, Joe
**Subject:** ever interview?
**Attachments:** (b) (6) pdf



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:19 PM
**To:** Burnison, Melissa;Varnasidis, Sophia
**Cc:** Bolton, Dwayne S.;McCurdy, Jake;Menezes, Mark
**Subject:** RE: Hill Followup on Grid Project

I'm in

-----Original Message-----
From: Burnison, Melissa
Sent: Tuesday, June 05, 2018 5:25 PM
To: Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>; McCurdy, Jake <Jake.Mccurdy@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
Subject: RE: Hill Followup on Grid Project

That works - I'd like to do it jointly but if Brian doesn't have the window, we can bring him up to speed separately -- thanks all

Melissa F. Burnison
Assistant Secretary
Congressional and Intergovernmental Affairs
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-5450
(b) (6) cell

-----Original Message-----
From: Varnasidis, Sophia
Sent: Tuesday, June 05, 2018 5:02 PM
To: Burnison, Melissa <Melissa.Burnison@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>; McCurdy, Jake <Jake.Mccurdy@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
Subject: RE: Hill Followup on Grid Project

S3 is unavailable this evening. His day tomorrow is jammed other than a small window from 10-10:30 if you want to meet then.

-----Original Message-----
From: Burnison, Melissa
Sent: Tuesday, June 05, 2018 4:53 PM
To: Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>; McCurdy, Jake <Jake.Mccurdy@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: Hill Followup on Grid Project



AMERICAN OVERSIGHT

Dwayne and I would like to find a few minutes with you both on the Hill outreach on the grid project to have a conversation. Do you have any time after 5pm where we could grab you both?

Thank you

Melissa F. Burnison
Assistant Secretary
Congressional and Intergovernmental Affairs
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-5450
(b) (6) :ell



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 4:15 PM
**To:** Hynes, Shaylyn;Fitzsimmons, Alexander;Szymanski, Jessica;Kinney, Sara
**Subject:** RE: Solar manufacturing prize press release

Good to go

---

**From:** Hynes, Shaylyn
**Sent:** Tuesday, June 05, 2018 6:47 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>
**Subject:** RE: Solar manufacturing prize press release

Ok thanks. We will hold until we hear from you

---

**From:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Date:** Monday, Jun 04, 2018, 9:47 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Solar manufacturing prize press release

No, we need to hold for now.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 8:29 PM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Solar manufacturing prize press release

Thanks. Is this clear to go?

---

**From:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Date:** Monday, Jun 04, 2018, 9:15 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Solar manufacturing prize press release

Brian,

Per our discussion, attached is the solar manufacturing prize press release.

-Alex



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 4:19 PM
**To:** Habansky, Sarah;Wilmot, Dan
**Cc:** Moore, Janelle
**Subject:** RE: FEMA remarks

yes

---

**From:** Habansky, Sarah
**Sent:** Tuesday, June 05, 2018 6:28 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** RE: FEMA remarks

(b) (5)

---

**From:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Date:** Tuesday, Jun 05, 2018, 6:25 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** RE: FEMA remarks

(b) (5)

---

**From:** Habansky, Sarah
**Sent:** Tuesday, June 05, 2018 4:04 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** FW: FEMA remarks

Final remarks with WH input -- let me know if you have any issues



AMERICAN OVERSIGHT

**From:** Hoffman, Patricia
**Sent:** Tuesday, June 05, 2018 4:03 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA remarks

(b) (5)

*Patricia Hoffman*
Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

**From:** Habansky, Sarah
**Sent:** Tuesday, June 05, 2018 3:53 PM
**To:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** FW: FEMA remarks
**Importance:** High

Can you guys look over the edits and send back to me?

**From:** Salvi, Mary E. EOP/WHO [mailto:(b) (6) ]
**Sent:** Tuesday, June 05, 2018 3:51 PM
**To:** McGinley, William J. EOP/WHO <(b) (6) >; Staff Secretary <(b) (6) >; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) McBride, Emily J. EOP/WHO <(b) (6) >
**Subject:** RE: FEMA remarks

DOE –

Attached are edits received to Sec. Perry's remarks tomorrow.

Please send back a clean version for our records as soon as able.

Thanks!

Mary Salvi
Assistant White House Staff Secretary
Desk: (202) 456-3251
Cell: (b) (6)
(b) (6)



AMERICAN OVERSIGHT

**From:** McGinley, William J. EOP/WHO
**Sent:** Monday, June 4, 2018 5:44 PM
**To:** Staff Secretary <(b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >
**Subject:** Fwd: FEMA remarks

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.

Begin forwarded message:

> **From:** "Habansky, Sarah" <Sarah.Habansky@hq.doe.gov>
> **Date:** June 4, 2018 at 5:43:07 PM EDT
> **To:** "McCormack, Brian" <Brian.Mccormack@hq.doe.gov>, "McGinley, William J. EOP/WHO" <(b) (6) >
> **Cc:** Staff Secretary <(b) (6) >, "Mocarski, Ashley D. EOP/WHO" <(b) (6) >, "McBride, Emily J. EOP/WHO" <(b) (6) >
> **Subject: RE: FEMA remarks**
>
> Please find attached DOE's talking points.
>
> -----Original Message-----
> From: McCormack, Brian
> Sent: Monday, June 04, 2018 12:10 PM
> To: McGinley, William J. EOP/WHO (b) (6) >
> Cc: Staff Secretary (b) (6) ; Mocarski, Ashley D. EOP/WHO (b) (6) >; McBride, Emily J. EOP/WHO (b) (6) ; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
> Subject: RE: FEMA remarks
>
> Yes, we'll have them over.
>
> -----Original Message-----
> From: McGinley, William J. EOP/WHO [mailto:(b) (6) ]
> Sent: Monday, June 04, 2018 11:46 AM
> To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> Cc: Staff Secretary <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >
> Subject: FEMA remarks
>
> Brian,
>
> Hope you had a good weekend. Wanted to confirm that staff sec and Cab Affairs will be



AMERICAN OVERSIGHT

receiving the secretary's draft FEMA remarks for vetting this afternoon.

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 5:00 PM
**To:** Trae Stephens
**Subject:** RE: Anduril Update

Trae- what's the best number to reach you at? Thanks.

---

**From:** Trae Stephens <trae@anduril.com>
**Date:** Monday, Jun 04, 2018, 5:16 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>, Palmer Luckey <palmer@anduril.com>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** Re: Anduril Update

We could *probably* make that work, but have a couple of conflicts due to (b) (4) that week. Would it be possible to get an appointment early the next week?

Trae'

On Mon, Jun 4, 2018 at 1:17 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Trae – how is June 21 at 4 pm?
>
> **From:** Trae Stephens [mailto:trae@anduril.com]
> **Sent:** Friday, June 01, 2018 2:53 PM
>
> **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> **Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
> **Subject:** Re: Anduril Update
>
> At the risk of becoming super annoying, just thought I would reach back out! Our plans for a June trip are starting to move forward and I'd like to prioritize this meeting if we can.
>
> Thanks!
>
> Trae'



AMERICAN OVERSIGHT

On Thu, May 24, 2018 at 1:48 PM, Trae Stephens <trae@anduril.com> wrote:

Awesome - thanks!

Trae'

On Thu, May 24, 2018 at 1:46 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

I have the Scheduling Office looking at that. Back in touch soon.

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:35 PM

**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

No worries!

Ideally, this would be either the week of the 18th or the 25th. We haven't locked in dates yet. What would work best for the Secretary? You guys can get first dibs! :)

Trae'

On Thu, May 24, 2018 at 1:28 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

Trae- Thanks for the note and sorry for not responding earlier. What days will you bi in DC?

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:23 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>



AMERICAN OVERSIGHT

**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

Brian: Thought I'd ping again here to resurface. We would love to chat!

Thanks,

Trae'

On Sat, May 12, 2018 at 10:58 AM, Trae Stephens <trae@anduril.com> wrote:

> Brian: I hope this finds you doing well! (b) (6) suggested that I reach out to you with regards to the project (b) (4) (copied) and I have been working on over the past year. We'd love to come in and chat with you and the Secretary about critical infrastructure protection using the technology we are currently deploying (b) (4)
>
> Here's a two-minute video summarizing the work.
>
> URL:(b) (6), (b) (4)
>
> Password:(b) (6), (b) (4)
>
> We will likely be back in DC in early/mid June and would be happy to come by and even do a live demonstration (connecting back to our (b) (4) ).
>
> Let me know what you think!
>
> Thanks,
>
> Trae'



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Bruce Fogerty, Richard and Elizabeth Muller |
| **Location:** | Brian McCormack's Office |
| **Start:** | Wed 6/6/2018 6:30 AM |
| **End:** | Wed 6/6/2018 7:00 AM |
| **Show Time As:** | Tentative |
| ***Recurrence:*** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Bruce Fogerty; Jaworowski, Suzanne |



AMERICAN OVERSIGHT

**Department of Energy**
**Washington, DC 20585**

Sam Gomberg
Union of Concerned Scientists
1825 K St. N.W., Suite 800
Washington, D.C. 20006

JUN 2 8 2019

Via email to: sgomberg@ucsusa.org

Re: HQ-2018-01436-F

Dear Mr. Gomberg:

This is a third partial response to the request for information that you sent to the Department of Energy (DOE) under the Freedom of Information Act (FOIA), 5 U.S.C. § 552. You requested:

> All emails, email attachments, or calendar invitations/entries sent or received by the following people:
>
> a. Brian McCormack
> b. Mark Menezes
> c. Steve Winberg
> d. Mark Maddox
> e. Sean Plasynski
> f. Bruce Walker
> g. Edward McGinnis
> h. Theodore Garrish
> i. Martin Dannenfelser
> j. Jennifer Loraine
> k. Daniel Simmons
> l. Sean Cunningham
> m. Shaylyn Hynes
>
> Provide records from May 30, 2018 to June 5, 2018.

In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."

AMERICAN OVERSIGHT

Your request was assigned to DOE's Office of the Executive Secretariat (ES); the Office of Fossil Energy (FE); the Office of Congressional and Intergovernmental Affairs (CI); the Office of Public Affairs (PA); the Office of Electricity (OE); the Office of Nuclear Energy (NE); the Office of International Affairs (IA); the Office of Management (MA); the Office of Environmental Management (EM); and the National Energy Technology Laboratory (NETL) to conduct a search of their files for responsive documents.

DOE started its search on August 8, 2018, which is the cut-off date for responsive documents. You received a first partial response on March 18, 2019 consisting of twenty-three (23) documents. You received a second partial response on May 17, 2019 consisting of fifty-two (52) documents. This letter serves as a third partial response for DOE. DOE is continuing to process your request for additional responsive documents, which will be provided to you in subsequent responses.

At this time, DOE has located one hundred and forty-eight (148) documents responsive to your request. Upon review, DOE has determined that certain information should be withheld pursuant to Exemptions 4, 5, 6, and 7(C) of the FOIA, 5 U.S.C. § 552(b)(4), (b)(5), (b)(6) and (b)(7)(C). One document, "Document 24", is being transferred to the Department of State.

The Department of State will respond directly to you under separate cover. If you have any questions about the Department of State's processing of the request, please contact Kellie Robinson at U.S. Department of State, at A/GIS/IPS/PP, SA-2 Suite 8100, Washington, D.C. 20522-0208. She can also be reached by email at RobinsonKN@state.gov or phone at 202-261-8484.

Exemption 4 of the FOIA protects "trade secrets and commercial or financial information obtained from a person and privileged or confidential." 5 U.S.C. § 552(b)(4). This exemption is intended to protect the interests of both the Government and submitters of information. Exemption 4 affords protection to submitters who provide trade secrets, or commercial or financial information to the Government by safeguarding them from the competitive disadvantages that could result from disclosure. The exemption covers two broad categories of information in Federal agency records: 1) trade secrets, and 2) information that is (a) commercial or financial, and (b) obtained from a person, and (c) privileged and confidential.

Portions of the enclosed documents that are withheld pursuant to Exemption 4 include sensitive commercial and financial information that is maintained in confidence by the company and that is not available in public sources. Such proprietary information being withheld includes deployment details, locations, and timing. Public disclosure of this information would cause substantial harm to company's competitive interests. Specifically, disclosing business strategies and financing information would provide an unfair advantage to competitors and may affect investor relations and/or valuation of the company. Furthermore, disclosure may curtail companies from providing such information to the government in the future. For these reasons, this information is being withheld.

In the *Critical Mass* decision, the court drew a distinction between information that was voluntarily submitted to a federal agency versus an involuntary submission of information.



AMERICAN OVERSIGHT

*Critical Mass Energy Project v. NRC,* 975 F.2d 871 (D.C. Cir. 1992) (en banc). Under *Critical Mass*, voluntarily submitted information is categorically protected as "confidential information" provided it is information that is not "customarily disclosed" to the general public by the submitter. In this case, a news reporting company submitted reporting and analysis to DOE on a voluntary basis. This information is analyzed pursuant to the voluntary prong of the *Critical Mass* test.

The voluntarily submitted information withheld under Exemption 4 consists of proprietary information that is maintained in confidence by the submitter company and that is not customary released to the general public. The information consists of reporting and analysis that are available only to subscribing members via a subscription with the appropriate company. Specifically, POLITICO requires an individual to subscribe to its services via a payment plan, which enables the subscriber to view certain POLITICO articles and information. Portions of emails that include such articles and information are therefore being withheld under Exemption 4 of the FOIA.

Exemption 5 protects "inter-agency or intra-agency memorandums or letters that would not be available by law to a party other than an agency in litigation with the agency." 5 U.S.C. § 552(b)(5). This exemption has been construed to exempt those documents normally privileged in the civil discovery context, such as attorney-client communications, attorney-work product documents, and deliberative process material.

The information withheld under Exemption 5 has been deemed pre-decisional and deliberative in nature, including pre-decisional discussions between DOE staff. The DOE may consider these preliminary views as part of the process that will lead to the agency's final decision about these matters. The information does not represent a final agency position, and its release would compromise the deliberative process by which the government makes its decisions. Withholding this information protects against the premature disclosure of proposed policies regarding personnel matters, protects the candor of intra-agency communications, and prevents confusion to the public that could result from disclosing alternative rationales for agency decisions.

With respect to the discretionary disclosure of deliberative information, the quality of agency decisions would be adversely affected if frank, written discussion of policy matters were inhibited by the knowledge that the content of such discussion might be made public. For this reason, DOE has determined that discretionary disclosure of the deliberative material is not in the public interest because foreseeable harm could result from such disclosure.

In addition, these documents contain communications involving DOE attorneys and are being withheld under the attorney work-product and attorney client privileges. The information in these documents includes deliberations of litigation strategy and information prepared by attorneys in anticipation of litigation. Further, several documents contain confidential communications between DOE attorneys and the staff of the program office to which they provide legal advice.

Exemption 6 is generally referred to as the "personal privacy" exemption; it provides that the disclosure requirements of FOIA do not apply to "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy." 5



AMERICAN OVERSIGHT

U.S.C. § 552(b)(6). In applying Exemption 6, the DOE considered: 1) whether a significant privacy interest would be invaded; 2) whether the release of the information would further the public interest by shedding light on the operations or activities of the Government; and 3) whether in balancing the privacy interests against the public interest, disclosure would constitute a clearly unwarranted invasion of privacy.

The information withheld under Exemption 6 consists of personal information, cell numbers, teleconference numbers and passcodes. This information qualifies as "similar files" because it is information in which an individual has a privacy interest. Moreover, releasing the information could subject the individuals to unwarranted or unsolicited communications. Since no public interest would be served by disclosing this information, and since there is a viable privacy interest that would be threatened by such disclosure, Exemption 6 authorizes withholding the information. Therefore, we have determined that the public interest in releasing this information does not outweigh the overriding privacy interests in keeping this information confidential.

Exemption 7 protects from disclosure "records or information compiled for law enforcement purposes" that fall within the purview of one or more of six enumerated categories. To qualify under Exemption 7, the information must have been compiled, either originally or at some later date, for a law enforcement purpose, which includes crime prevention and security measures, even if that is only one of the many purposes for compilation. Exemption 7(C) provides that, "records of information compiled for law enforcement purposes" may be withheld from disclosure, but only to the extent that the production of such documents "could reasonably be expected to constitute an unwarranted invasion of personal privacy…" In applying Exemption 7(C), DOE considered whether a significant privacy interest would be invaded, whether the release of the information would further the public interest in shedding light on the operations or activities of the Government, and whether in balancing the privacy interests against the public interest, disclosure would constitute unwarranted invasion of privacy.

The names, contact information and tasks withheld identify security personnel. Those individuals have a significant privacy interest in their identities, which, if known, could pose a serious safety risk to them or those to whom they are providing protection, and may result in an unwarranted invasion of their privacy. Releasing their identities or contact information would reveal little about the operations or activities of the Government. Therefore, disclosure of this information could reasonably be expected to constitute an unwarranted invasion of personal privacy.

This satisfies the standard set forth in the Attorney General's March 19, 2009, memorandum that when a FOIA request is denied, agencies will be defended and justified in not releasing the material on a discretionary basis "if (1) the agency reasonably foresees that disclosure will harm an interest protected by one of the statutory exemptions, or (2) disclosure is prohibited by law." The Attorney General's memorandum also provides that whenever full disclosure of a record is not possible, agencies "must consider whether they can make a partial disclosure." Thus, we have determined that, in certain instances, a partial disclosure is proper. This also satisfies DOE's regulations at 10 C.F.R. § 1004.1 to make records available which it is authorized to withhold under 5 U.S.C. § 552 when it determines that such disclosure is in the public interest. Accordingly, we will not disclose this information.



AMERICAN OVERSIGHT

Pursuant to 10 C.F.R. § 1004.7(b)(2), I am the individual responsible for the determination to withhold the information described above. The FOIA requires that "any reasonably segregable portion of a record shall be provided to any person requesting such record after deletion of the portions which are exempt," 5 U.S.C. § 552(b). As a result, a redacted version of the document is being released to you in accordance with 10 C.F.R. § 1004.7(b)(3).

This decision may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to Director, Office of Hearings and Appeals, HG-1, L'Enfant Plaza, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line. (This is the method preferred by the Office of the Hearings and Appeals.) The appeal must contain all of the elements required by 10 C.F.R. § 1004.8, including a copy of the determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: 1) in the district where you reside; 2) where you have your principal place of business; 3) where DOE's records are situated; or 4) in the District of Columbia.

You may contact DOE's FOIA Public Liaison, Alexander Morris, FOIA Officer, Office of Public Information, at 202-586-5955, or by mail at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

The FOIA provides for the assessment of fees for the processing of requests. *See* 5 U.S.C. § 552(a)(4)(A)(i); *see also* 10 C.F.R. § 1004.9(a). In our August 16, 2018, letter, you were advised that your request was placed in the "scientific" category for fee purposes. Requesters in this category are charged fees for duplication only and are provided 100 pages at no cost. In that same letter, you were informed that your fee waiver request was granted. Therefore, no fees will be charged for processing your request.

DOE is continuing to process your request. If you have questions about the processing of the request or this letter, please contact Ms. Ayana Crawford in this office at MA-46/Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585, or at Ayana.Crawford@hq.doe.gov.



AMERICAN OVERSIGHT

I appreciate the opportunity to assist you with this matter.

Sincerely,

Alexander C. Morris
FOIA Officer
Office of Public Information

Enclosures



AMERICAN OVERSIGHT

**INDEX**

**Request #: HQ-2018-01436-F**

**Third partial response to the request from Mr. Gomberg for:**

> **All emails, email attachments, or calendar invitations/entries sent or received by the following people:**
>
> **a. Brian McCormack**
> **b. Mark Menezes**
> **c. Steve Winberg**
> **d. Mark Maddox**
> **e. Sean Plasynski**
> **f. Bruce Walker**
> **g. Edward McGinnis**
> **h. Theodore Garrish**
> **i. Martin Dannenfelser**
> **j. Jennifer Loraine**
> **k. Daniel Simmons**
> **l. Sean Cunningham**
> **m. Shaylyn Hynes**
>
> **Provide records from May 30, 2018 to June 5, 2018.**

**In an email dated February 14, 2019, Hart Wood, on behalf of Union of Concerned Scientists (UCS), wrote concerning this request that "UCS agrees to limit the search and review to emails sent by the listed custodians, with the condition that the review and production still include the emails in the chain below those sent emails. Furthermore, as with the rest of the attachments, UCS may in the future request specific emails and/or attachments sent to the listed custodians." In the same email, Mr. Wood stated, "DOE may exclude Edward McGinnis, Theodore Garrish, Daniel Simmons, Martin Dannenfelser, and Jennifer Loraine as custodians."**

At this time, DOE has identified one hundred and forty-eight (148) additional documents responsive to your request

- Forty-eight (48) documents *are being released in full.*
- Ninety-Nine (99) documents *are being released in part pursuant to Exemptions 4, 5, 6 and/or 7(C).*
- One (1) document is being transferred to the Department of State for direct response.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 4:55 AM
**To:** Smith, Wayne D
**Subject:** RE: FOR REVIEW: (b) (5)

That works.

---

**From:** Smith, Wayne D
**Sent:** Friday, May 25, 2018 6:59 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: FOR REVIEW: (b) (5)

Incoming from Staff Sec. Potential reviewers: PA & OP. S2's office for awareness. Would you like to include anyone else?

V/r,
Wayne

---

**From:** Staff Secretary <(b) (6) >
**Date:** Friday, May 25, 2018, 5:54 PM
**To:** Smith, Wayne D <Wayne.Smith@hq.doe.gov>, juliette_lillie@ios.doi.gov <juliette_lillie@ios.doi.gov>, Scott Hommel <scott_hommel@ios.doi.gov>, geale.nicholas.c@dol.gov <geale.nicholas.c@dol.gov>, Walter, Courtney E - OSEC <Walter.Courtney.E@DOL.gov>, jackson.ryan@epa.gov <jackson.ryan@epa.gov>, Knight, Shahira E. EOP/WHO <(b) (6) >, Chalkey, Richard J. EOP/WHO <(b) (6) >, Miller, Julie L. EOP/OMB <Julie_Miller@omb.eop.gov>, Robbins, Amanda H. EOP/OMB <Amanda.H.Robbins@omb.eop.gov>, Donaldson, Annie M. EOP/WHO <(b) (6) >, Moran, John S. EOP/WHO <(b) (6) >, Bremberg, Andrew P. EOP/WHO <(b) (6) >, Leggitt, Lance B. EOP/WHO <(b) (6) >, Sherk, James B. EOP/WHO <(b) (6) >, Wold, Theo J. EOP/WHO <(b) (6) >, DL WHO LEG AFFAIRS Staff Sec <DL.LEGAFFAIRS.StaffSec@whmo.mil>, Greenwood, Daniel Q. EOP/WHO <(b) (6) >, Hoelscher, Douglas L. EOP/WHO <(b) (6) >, Clark, Justin R. EOP/WHO <(b) (6) >, Conway, Kellyanne E. EOP/WHO (b) (5) Sanders, Sarah H. EOP/WHO (b) (5) Schlapp, Mercedes V. EOP/WHO <(b) (6) >, Hudson, Renee R. EOP/WHO <(b) (6) >, Shah, Raj S. EOP/WHO <(b) (6) >, Walters, Lindsay E. EOP/WHO <(b) (6) >, Gidley, Hogan H. EOP/WHO <(b) (6) >, Ditto, Jessica E. EOP/WHO <(b) (6) >, Nasim, Laura F. EOP/WHO <(b) (6) >, Kratsios, Michael J. EOP/OSTP <(b) (6) >, Diana, Grace A. EOP/OSTP <(b) (6) >, Neumayr, Mary B. EOP/CEQ <(b) (6) >, Smith, Katherine R. EOP/CEQ <(b) (6) >, Sullivan, Joseph W. EOP/CEA <(b) (6) >, Nordquist, DJ D. EOP/CEA <(b) (6) >
**Cc:** Staff Secretary <(b) (6) >
**Subject:** FOR REVIEW: (b) (5)

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 6:19 AM
**To:** Maddox, Mark;Menezes, Mark;Cunningham, Sean;Fibbe, George;Winberg, Steven
**Subject:** RE: CANCELED: (b) (5)

Thanks. I've alerted Doug Little who is having lunch with Powelson today. They're former state commission colleagues.

---

**From:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 8:46 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Winberg, Steven <Steven.Winberg@hq.doe.gov>
**Subject:** FW: CANCELED: (b) (5)

FYI

*Mark R. Maddox*
*Principal Deputy Assistant Secretary*
*Office of Fossil Energy*
*U.S. Department of Energy*
*Ph: 202.586.1619*
*Email: mrmaddox@hq.doe.gov*
*S:* (b) (6)

**From:** Wilson, James E. [mailto:James.Wilson@NETL.DOE.GOV]
**Sent:** Wednesday, May 30, 2018 8:13 AM
**To:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>; Winberg, Steven <Steven.Winberg@hq.doe.gov>; Maddox, Mark <MRMaddox@hq.doe.gov>; Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Plasynski, Sean (NETL) <sean.plasynski@netl.doe.gov>; Gentry, Randall W (NETL) <randall.gentry@netl.doe.gov>; Lakatos, Margie (NETL) <margie.lakatos@netl.doe.gov>
**Subject:** CANCELED: (b) (5)
**Importance:** High

Steve et.al.

NETL received word via voicemail from Brian George w/ FERC late yesterday informing us that (b) (5) has had a change of plans and will not be able to visit NETL next week. He passed along the (b) (5) apologies for the change of plans and said they hoped the visit could be rescheduled for some time in the future.

He did not give any indication of the nature of the change of plans and we do not yet know if their visit to Longview has also been canceled. We will follow up with Longview today to see if the (b) (5) tour there is still on. We will also follow up with Mr. George to gain additional insight regarding the change of plans.



AMERICAN OVERSIGHT

Related to the Annual Lab Plan meeting, NETL management is again available on June 6th if the meeting hasn't already been moved from everyone's calendar. We will await word on scheduling.

Jim

**James E. Wilson**
Executive Director and Chief Financial Officer
National Energy Technology Laboratory

James.Wilson@netl.doe.gov
**Office:** 412.386.6150 **Mobile:** (b) (6)
Address: 626 Cochrans Mill Road, Pittsburgh, PA 15236



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 6:20 AM
**To:** Fibbe, George;Wilmot, Dan;Colgary, James
**Subject:** RE: SC Litigation

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 8:46 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** SC Litigation

Brian, Dan, Jim --

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 6:21 AM
**To:** Fibbe, George;Wilmot, Dan;Colgary, James
**Subject:** RE: SC Litigation

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 8:46 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** SC Litigation

Brian, Dan, Jim --

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Kristen Elfers |
| **Location:** | Brian McCormack's Office |
| **Start:** | Wed 5/30/2018 7:30 AM |
| **End:** | Wed 5/30/2018 8:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Elfers, Kristen |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:15 AM
**To:** Boozman, Shannon E
**Cc:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** RE: JPMorgan Chase Meeting Request- June 5 or 6

Shannon,

Thanks for the note and follow-up. We've had a number things moving around on our schedule due to WH driven activity. I'm not sure we can do this but am copying in the Scheduling Office for their awareness.

Just so I know, is Mr. Holmes only interested in meeting with Secretary Perry or are other senior leaders of interest in case the schedule doesn't work on our end? Thanks.

Brian

---

**From:** Boozman, Shannon E [mailto:shannon.e.boozman@jpmchase.com]
**Sent:** Wednesday, May 30, 2018 10:51 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: JPMorgan Chase Meeting Request- June 5 or 6

Hi Brian, just following up to see if we could come by the office next week?
Thanks!
Shannon

---

**From:** Boozman, Shannon E
**Sent:** Wednesday, May 23, 2018 12:17 PM
**To:** 'brian.mccormack@hq.doe.gov' <brian.mccormack@hq.doe.gov>
**Subject:** JPMorgan Chase Meeting Request- June 5 or 6

Dear Brian - hope all is well. As Head of Corporate Client Banking & Specialized Industries business within J.P. Morgan Commercial Banking, Rob Holmes heads up our energy business for the bank and will be in DC on June 5 and morning of June 6 and would like to quickly come by and meet Sec. Perry if possible. Rob is based in Texas and oversees multiple offices in the U.S. and Canada that provide traditional banking services, investment banking solutions and international capabilities to companies across all industries, typically with $500 million and greater in annual sales.

Rob can provide a quick overview of the trends we are seeing across the country in energy sector. As part of his portfolio, Rob oversees energy companies ranging from small, private businesses to global, diversified operations. Separately, I've attached an interesting paper on what the electoral college would look like if it was based on food and energy production.

Let me know of any questions and thanks for your consideration!

Best, Shannon

Shannon Boozman
Federal Government Relations



AMERICAN OVERSIGHT

JPMorgan Chase & Co.
202.585.1351 office
(b) (6) cell

This message is confidential and subject to terms at: http://www.jpmorgan.com/emaildisclaimer including on confidentiality, legal privilege, viruses and monitoring of electronic messages. If you are not the intended recipient, please delete this message and notify the sender immediately. Any unauthorized use is strictly prohibited.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:15 AM
**To:** Gerdes, Stan
**Cc:** Wallwork, Luke;Almstead, Deidre;Wilmot, Dan
**Subject:** RE: Next Week

Copy.

-----Original Message-----
From: Gerdes, Stan
Sent: Wednesday, May 30, 2018 10:21 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Wallwork, Luke <Luke.Wallwork@hq.doe.gov>; Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
Subject: RE: Next Week

I just got off the line w/ S1:

We're bringing him back Monday night & he's good with S3 speaking at EIA.

-----Original Message-----
From: McCormack, Brian
Sent: Tuesday, May 29, 2018 7:07 PM
To: (b) (6)
Cc: Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>; Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
Subject: Next Week

Sir,

Attached is what M, T, & W were looking like (b) (5) Some items we'll have to work on getting back on schedule include:

-Speech at the DOE EIA Conference (S3 was standing in for you...and we can leave that way if need be)
-FEMA Briefing w/ POTUS on Wednesday
-(b) (5)

-(b) (5)
-Argentina Pre-Briefs
-Meeting with Cummins CEO

-Reminder (b) (6) and you're going to Oak Ridge for the day on Friday, June 8.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:16 AM
**To:** Turenne, William;Haus, Bob;Liben, Paul;Hynes, Shaylyn
**Cc:** Assafe, Yordanos;Wilmot, Dan
**Subject:** RE: EIA Energy Conference agenda

This will be for S3. Alerting his office now.

What do we need to cover in the 15 minutes?

---

**From:** Turenne, William
**Sent:** Wednesday, May 30, 2018 9:06 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** RE: EIA Energy Conference agenda

Hey Brian,

Now that this is back to a possibility for S1 (or even if it ends up being S3) can Paul, Shaylyn and I get 15 minutes of time with you?

Bill

---

**From:** McCormack, Brian
**Sent:** Wednesday, May 23, 2018 4:57 PM
**To:** Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** RE: EIA Energy Conference agenda

S1 is now not going to be able to do this. Scheduling is looking to see if S3 can.

---

**From:** Turenne, William
**Sent:** Wednesday, May 23, 2018 4:33 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda

Hey Brian,

Hoping we might be able to get a little time with you before the holiday weekend to talk about specific goals and messages for the EIA speech.

Thanks,



AMERICAN OVERSIGHT

Bill

---

**From:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Date:** Wednesday, May 23, 2018, 4:19 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda

Bob and Bill,

Could we all meet with Brian on this?

The goal would be clear direction on this speech in advance of the Memorial Day weekend.

Thanks.

Paul

---

**From:** Haddad, Zead
**Sent:** Wednesday, May 23, 2018 3:30 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Parrish, Lynn (EIA) <lynn.parrish@eia.gov>
**Cc:** Liben, Paul <Paul.Liben@hq.doe.gov>; Sweetnam, Dale (EIA) <dale.sweetnam@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Good afternoon,

Materials would be appreciated by COB Wednesday, May 30th.

Please let me know if you have any questions.

Thank you.
6-6431

---

**From:** Habansky, Sarah
**Sent:** Monday, May 21, 2018 4:57 PM
**To:** Parrish, Lynn (EIA) <lynn.parrish@eia.gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>; Liben, Paul <Paul.Liben@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda

Hi Lynn,

We will need some event materials for the Secretary's book. I looped in Zead who can get you what you need to fill out and when he needs it.

I know PA is working on remarks as well

---

**From:** Almstead, Deidre
**Sent:** Monday, May 21, 2018 4:23 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: EIA Energy Conference agenda



AMERICAN OVERSIGHT

**From:** Parrish, Lynn [mailto:Lynn.Parrish@eia.gov]
**Sent:** Monday, May 21, 2018 1:00 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Cc:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Brasher, Kelsey (CONTR) (EIA) <kelsey.brasher@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Stan,

Attached is the completed event form along with other information requested. We will provide an updated attendee list and media list the week before the conference.

Thanks,
Lynn

---

**From:** Parrish, Lynn
**Sent:** Monday, May 21, 2018 10:24 AM
**To:** 'Gerdes, Stan' <Stan.Gerdes@hq.doe.gov>
**Cc:** Almstead, Deidre (HQ) <deidre.almstead@hq.doe.gov>; Brasher, Kelsey (CONTR) <kelsey.brasher@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Stan,

We are very happy that the Secretary will speak at our conference again this year.

We will get the event form to you this morning. How long will the Secretary speak and will he do Q&A after his remarks? He spoke for 15 minutes last year and did not do Q&A.

Thanks,
Lynn

---

**From:** Gerdes, Stan [mailto:Stan.Gerdes@hq.doe.gov]
**Sent:** Friday, May 18, 2018 3:19 PM
**To:** Sweetnam, Dale <Dale.Sweetnam@eia.gov>
**Cc:** Parrish, Lynn <Lynn.Parrish@eia.gov>; Almstead, Deidre (HQ) <deidre.almstead@hq.doe.gov>
**Subject:** RE: EIA Energy Conference agenda

Dale,

I would like to confirm the Secretary for the 8:30am slot on Tuesday, June 5th.

Please let me know the proper contact to work with regarding logistics – I've attached the Secretary's event form.

Thanks,
Stan

---

**From:** Sweetnam, Dale [mailto:Dale.Sweetnam@eia.gov]
**Sent:** Friday, May 18, 2018 2:16 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Cc:** Parrish, Lynn (EIA) <lynn.parrish@eia.gov>
**Subject:** RE: EIA Energy Conference agenda

Hi Stan,



AMERICAN OVERSIGHT

I just called Lynn on her cell. She said that we'd love to have the Secretary speak at lunch on June 5, but if the morning slot (8:30 a.m.) is better, we can make it work.

Dale

---

**From:** Sweetnam, Dale
**Sent:** Friday, May 18, 2018 2:12 PM
**To:** Gerdes, Stan (HQ) <stan.gerdes@hq.doe.gov>
**Cc:** Parrish, Lynn <Lynn.Parrish@eia.gov>
**Subject:** EIA Energy Conference agenda

Hi Stan,

Here is the website for the conference. You can find the agenda for both days at the bottom of the page.

http://wxq47w.attendify.io/#

Please let me know if you have any questions.

Dale Sweetnam
U.S. Energy Information Administration
202-586-0851



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 8:19 AM
**To:** emilygrace.mate@navy.mil;Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** Invite to USS Constitution

Stan and Deidre,

Meet Emily Grace at SecNav's office. She just called to extend an invite for S1 to fly up to Boston and visit the USS Constitution on Friday, June 8. I declined based on our trip to ORNL but wanted to connect you in case plans change on either end. It's a great trip and one I know Secretary Perry would like to consider if there is a future opportunity.

Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 9:55 AM
**To:** Uddo, Joe;Garrish, Theodore
**Subject:** FW: Jonathan Lang Resume 5.6.18.pdf
**Attachments:** Jonathan Lang Resume 5.6.18.pdf

For consideration

---

**From:** Brian McCormack [mailto(b) (6) ]
**Sent:** Wednesday, May 30, 2018 11:11 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Fwd: Jonathan Lang Resume 5.6.18.pdf

Begin forwarded message:

> **From:** Brian McCormack <(b) (6) >
> **Date:** May 20, 2018 at 7:17:37 AM EDT
> **To:** Ted Garrish (b) (6) >
> **Subject: Jonathan Lang Resume 5.6.18.pdf**
>
> One for you



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | McCormack, Brian |
| **Sent:** | Wednesday, May 30, 2018 10:30 AM |
| **To:** | Hynes, Shaylyn |
| **Subject:** | FW: FOIA Request HQ-2017-00476-F (Premium Travel) |
| **Attachments:** | HQ-2018-00476-F Response Letter.pdf; HQ-2018-00476-F Responsive Document-FINAL.pdf; HQ-2018-00476-F Redlined Responsive Documents.pdf; HQ-2018-00476-F Original Request.pdf |

---

**From:** Sullivan, Elizabeth (CONTR) <Elizabeth.Sullivan@Hq.Doe.Gov>
**Date:** Wednesday, May 30, 2018, 1:11 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FOIA Request HQ-2017-00476-F (Premium Travel)

Good afternoon Mr. McCormack,

Per our conversation, please find attached the premium travel report for fiscal year 2017. I have attached the original FOIA request ("HQ-2018-00476-F Original Request"), the redlined copy of the responsive document and what was ultimately released to the requester. We released this to Mr. Kevin Bogardus from E&E news yesterday, May 29, 2018.

Please let me know if you have any questions or concerns.

Thank you,
Elizabeth

Elizabeth A. Sullivan, Esq.
Program Manager
Central Research, Inc., Contractor
U.S. Department of Energy
1000 Independence Ave., SW
Washington, D.C. 20585
t: 202-586-9141



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 11:23 AM
**To:** Flynn, Matthew J. EOP/WHO
**Subject:** RE:

FYI https://www.whitehouse.gov/nsc/

---

**From:** Flynn, Matthew J. EOP/WHO [mailto:(b) (6)
**Sent:** Wednesday, May 30, 2018 11:32 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:**

https://www.energy.gov/contributors/kevin-knobloch

Matthew J. Flynn
Special Assistant to the President
Senior Director for Cabinet Affairs
The White House
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 11:26 AM
**To:** Hynes, Shaylyn;Wilmot, Dan
**Subject:** RE: Doe

I'm available.

---

**From:** Hynes, Shaylyn
**Sent:** Wednesday, May 30, 2018 2:25 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Doe

Something is wrong with email because this came through just a few minutes ago for me. she called and they will not hold until tomorrow.

Do either of you have a moment to chat in the next hour? (b) (5)

---

**From:** Ebbs, Stephanie <Stephanie.Ebbs@abc.com>
**Date:** Wednesday, May 30, 2018, 1:08 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Doe

The document is attached, I'll talk to my editor about waiting because I do think it's important to get more context.

It was described to me as a log of premium travel costs for FY2017. I wanted to verify a couple of things like does listing the "exception code" mean the trip was approved by ethics officials under that code? When they list the "exceptional security circumstances" exception does that reference a specific security issue or threat?

Can you also provide more detail about the trips listed for Sec. Moniz, Sec. Perry, and Mrs. Perry including the date and the purpose of the trip? I didn't see if the secretary's schedules were posted online anywhere so if it's already available somewhere please let me know.

Thank you!

Stephanie Ebbs
ABC News-Washington
(desk) 202-222-7015
(cell) (b) (6)
@stephebbs

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 12:40:17 PM



AMERICAN OVERSIGHT

**To:** Ebbs, Stephanie
**Subject:** Doe

Hey! Nice chatting. I am running out of the office now but if you send me that document or Info ASAP I can try to run this down for you (but I will be on a flight) if I'm not able to is there any way to give us the night on this since I would have to track stuff down?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 11:26 AM
**To:** Mocarski, Ashley D. EOP/WHO;Almstead, Deidre;McGinley, William J. EOP/WHO
**Subject:** RE: POTUS Scheduling Proposal (b) (5)

Thanks. (b) (5) If there is any status update please let us know. Thanks much.

-----Original Message-----
From: Mocarski, Ashley D. EOP/WHO [mailto:(b) (6) ]
Sent: Wednesday, May 30, 2018 2:25 PM
To: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; McGinley, William J. EOP/WHO <(b) (6) >
Cc: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: POTUS Scheduling Proposal (b) (5)

Received. Thank you! We will keep you both updated on the status.

-----Original Message-----
From: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
Sent: Wednesday, May 30, 2018 2:22 PM
To: McGinley, William J. EOP/WHO <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >
Cc: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: POTUS Scheduling Proposal (b) (5)

Bill and Ashley,

Brian asked me to send over the attached scheduling proposal for consideration.

Please let me know if you have any questions or need any more information.

Thank you!
Deidre

Deidre Almstead
Office of the Secretary
Department of Energy



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 12:16 PM
**To:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** FW: Doe

---

**From:** Hynes, Shaylyn
**Sent:** Wednesday, May 30, 2018 2:45 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Doe

---

**From:** Ebbs, Stephanie <Stephanie.Ebbs@abc.com>
**Date:** Wednesday, May 30, 2018, 2:43 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Doe

Here are the travel costs that I have from looking through the documents

The department spent about $63,500 on premium travel for Sec. Perry in his first six months, which was about $50,000 more than the cost of flying coach on the same trips.

Before Sec. Moniz left the agency in January the cost of his premium travel was about $42,500, which was an additional $30,000 compared to coach.

All of those flights for both secretaries were approved under the security exemption.

The document also shows that Mrs. Perry's premium flights initially cost $20,000 (but as you said that cost was reimbursed).

Stephanie Ebbs
ABC News-Washington
(desk) 202-222-7015
(cell) (b) (6)
@stephebbs

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 2:20:22 PM
**To:** Ebbs, Stephanie
**Subject:** RE: Doe



AMERICAN OVERSIGHT

Off the record- This just came through, it was in my spam and I only saw it after your second email. I am close to boarding a plane for three hours so I'm not sure how I'll be able to get this done and get the information but I'll try

---

**From:** Ebbs, Stephanie <Stephanie.Ebbs@abc.com>
**Date:** Wednesday, May 30, 2018, 1:08 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Doe

The document is attached, I'll talk to my editor about waiting because I do think it's important to get more context.

It was described to me as a log of premium travel costs for FY2017. I wanted to verify a couple of things like does listing the "exception code" mean the trip was approved by ethics officials under that code? When they list the "exceptional security circumstances" exception does that reference a specific security issue or threat?

Can you also provide more detail about the trips listed for Sec. Moniz, Sec. Perry, and Mrs. Perry including the date and the purpose of the trip? I didn't see if the secretary's schedules were posted online anywhere so if it's already available somewhere please let me know.

Thank you!

Stephanie Ebbs
ABC News-Washington
(desk) 202-222-7015
(cell) (b) (6)
@stephebbs

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 12:40:17 PM
**To:** Ebbs, Stephanie
**Subject:** Doe

Hey! Nice chatting. I am running out of the office now but if you send me that document or info ASAP I can try to run this down for you (but I will be on a flight) if I'm not able to is there any way to give us the night on this since I would have to track stuff down?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 2:24 PM
**To:** Everett, Max
**Subject:** FW: iSystems meeting request

Coming to you. Ok?

**From:** Jessee, Matt [mailto:matt.jessee@bclplaw.com]
**Sent:** Wednesday, May 30, 2018 4:49 PM
**To:** Oliver, Jack <jack.oliver@bclplaw.com>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Russell, Dave <dave.russell@bclplaw.com>
**Subject:** RE: iSystems meeting request

Brian – thanks for your willingness to help. This is the company Jack called about iSystems,
- https://www.isystemsgroup.com. Can you connect us to whoever is best political to come talk to about this?

**From:** Oliver, Jack
**Sent:** Friday, May 04, 2018 9:24 AM
**To:** 'Brian.mccormack@hq.doe.gov'
**Subject:** iSystems meeting request

Brian –

My law firm represents iSystems, a Service-Disabled Veteran-Owned Small Business IT Contractor. iSystems successfully managed one of the first major cloud transitions for the FAA. Here's their website
- https://www.isystemsgroup.com

Can you connect me to whoever you think is right political appointee who oversees information systems so I can bring them to meet?

Jack

This electronic message is from a law firm. It may contain confidential or privileged information. If you received this transmission in error, please reply to the sender to advise of the error and delete this transmission and any attachments.

We may monitor and record electronic communications in accordance with applicable laws and regulations. Where appropriate we may also share certain information you give us with our other offices (including in other countries) and select third parties. For further information (including details of your privacy rights and how to exercise them), see our updated Privacy Notice at www.bclplaw.com.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 2:39 PM
**To:** Krebs, Christopher
**Subject:** DOE Cyber Conference

Chris,

Here is the link to the DOE Cyber Conference next week in Austin: http://www.doecybercon.com/ Let me know if you need any more information. Thanks.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 2:42 PM
**To:** Varnasidis, Sophia;Gerdes, Stan;Little, Douglas;Garrish, Theodore
**Subject:** RE: Daniel Yergin

(b) (6)

-----Original Message-----
From: Varnasidis, Sophia
Sent: Wednesday, May 30, 2018 5:39 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Little, Douglas <Douglas.Little@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>
Subject: Daniel Yergin

Does anyone have a number for him?

SOPHIA A. VARNASIDIS
Chief of Staff
Office of the Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-0057



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 3:26 PM
**To:** Wallwork, Luke;Almstead, Deidre;Wilmot, Dan;Gerdes, Stan
**Subject:** RE: 5.31-6.12

LK had Mrs. P number.

---

**From:** Wallwork, Luke
**Sent:** Wednesday, May 30, 2018 6:25 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: 5.31-6.12

My guess is S1 gave Brittany AP contact info during lunch last week

---

**From:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 4:56 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: 5.31-6.12

(b) (6)

---

**From:** Anita Perry <(b) (6) >
**Date:** Wednesday, May 30, 2018, 5:46 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Subject:** Re: 5.31-6.12

Yes. Please
(b) (6)

Sent from my iPhone

> On May 30, 2018, at 3:45 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>
> Yes ma'am so sorry- I clicked the wrong version of the PDF here is the updated schedule with the cancellation reflected
>
> (b) (6)

>
> Thank you!
> Deidre
>
> -----Original Message-----



AMERICAN OVERSIGHT

> From: Anita Perry [mailto:(b) (6)
> Sent: Wednesday, May 30, 2018 4:36 PM
> To: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
> Subject: Re: 5.31-6.12
>
> I thought (b) (5) had been cancelled?
>
> Sent from my iPhone
>
>> On May 30, 2018, at 3:09 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>>
>> Hi Mrs. Perry,
>>
>> Attached is the schedule for May 31st to June 12th.
>>
>> Thank you!
>> Deidre
>>
>> Deidre Almstead
>> Office of the Secretary
>> Department of Energy
>>
>>
>> <5.31-6.12.pdf>
> <5.31-6.12.pdf>



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 3:25 PM
**To:** Almstead, Deidre;Wilmot, Dan;Wallwork, Luke;Gerdes, Stan
**Subject:** RE: 5.31-6.12

They discussed last week so yes, he's aware.

---

**From:** Almstead, Deidre
**Sent:** Wednesday, May 30, 2018 5:57 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: 5.31-6.12

(b) (6)

---

**From:** Anita Perry <(b) (6) >
**Date:** Wednesday, May 30, 2018, 5:46 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Subject:** Re: 5.31-6.12

Yes. Please
(b) (6)

Sent from my iPhone

> On May 30, 2018, at 3:45 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>
> Yes ma'am so sorry- I clicked the wrong version of the PDF here is the updated schedule with the cancellation reflected
>
> (b) (6)

>
> Thank you!
> Deidre
>
> -----Original Message-----
> From: Anita Perry [mailto:(b) (6)
> Sent: Wednesday, May 30, 2018 4:36 PM
> To: Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
> Subject: Re: 5.31-6.12
>
> I thought (b) (5) had been cancelled?
>
> Sent from my iPhone
>
>> On May 30, 2018, at 3:09 PM, Almstead, Deidre <Deidre.Almstead@hq.doe.gov> wrote:
>>



AMERICAN OVERSIGHT

>> Hi Mrs. Perry,
>>
>> Attached is the schedule for May 31st to June 12th.
>>
>> Thank you!
>> Deidre
>>
>> Deidre Almstead
>> Office of the Secretary
>> Department of Energy
>>
>>
>> <5.31-6.12.pdf>
> <5.31-6.12.pdf>



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:04 AM
**To:** Nasim, Laura F. EOP/WHO
**Subject:** RE: Connect with DOE

I can do from 1215 pm onward. Sorry for the slow response.

---

**From:** Nasim, Laura F. EOP/WHO [mailto:(b) (6)
**Sent:** Wednesday, May 30, 2018 9:39 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Connect with DOE

Hi Brian!

What times are you free tomorrow?

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Wednesday, May 30, 2018 7:55 AM
**To:** Nasim, Laura F. EOP/WHO <(b) (6) >
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Connect with DOE

Laura- just checking in if there's a time that works. There were two productive WH meetings on the topic yesterday that I want to update Mercy on. Thanks.

---

**From:** Nasim, Laura F. EOP/WHO [mailto:(b) (6)
**Sent:** Friday, May 25, 2018 6:53 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Re: Connect with DOE

Hi Brian! - a meeting just came up with the COS. Just spoke with mercy and she would like to reschedule this for Tuesday

Sent from my iPhone

On May 24, 2018, at 7:51 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Laura- just checking on link for WAVES. Thanks

---

**From:** Nasim, Laura F. EOP/WHO <(b) (6) >
**Date:** Thursday, May 24, 2018, 4:37 PM
**To:** Schlapp, Mercedes V. EOP/WHO <(b) (6) >, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Connect with DOE



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:36 AM
**To:** Matheney, Doug;Assafe, Yordanos
**Subject:** RE: Material for Mickey Leland

I didn't receive anything.

---

**From:** Matheney, Doug
**Sent:** Thursday, May 31, 2018 7:01 AM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Material for Mickey Leland

I sent some information to Brian last night, with more to come this morning.
I am sorry about the delay.

---

**From:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 6:58 AM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Material for Mickey Leland

Good morning sir,

I hope all is well. I just wanted to check in and see if you have sent the material for Brian this morning as I have not received anything on my end.

Thank you so much and I look forward to hearing back from you.



AMERICAN OVERSIGHT

Document 23

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:38 AM
**To:** Jessee, Matt;Oliver, Jack;Everett, Max
**Cc:** Russell, Dave
**Subject:** RE: iSystems meeting request

Gents, looping in our CIO Max Everett.

---

**From:** Jessee, Matt [mailto:matt.jessee@bclplaw.com]
**Sent:** Wednesday, May 30, 2018 4:49 PM
**To:** Oliver, Jack <jack.oliver@bclplaw.com>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Russell, Dave <dave.russell@bclplaw.com>
**Subject:** RE: iSystems meeting request

Brian – thanks for your willingness to help. This is the company Jack called about iSystems,
- https://www.isystemsgroup.com. Can you connect us to whoever is best political to come talk to about this?

---

**From:** Oliver, Jack
**Sent:** Friday, May 04, 2018 9:24 AM
**To:** 'Brian.mccormack@hq.doe.gov'
**Subject:** iSystems meeting request

Brian –

My law firm represents iSystems, a Service-Disabled Veteran-Owned Small Business IT Contractor. iSystems successfully managed one of the first major cloud transitions for the FAA. Here's their website
- https://www.isystemsgroup.com

Can you connect me to whoever you think is right political appointee who oversees information systems so I can bring them to meet?

Jack

This electronic message is from a law firm. It may contain confidential or privileged information. If you received this transmission in error, please reply to the sender to advise of the error and delete this transmission and any attachments.

We may monitor and record electronic communications in accordance with applicable laws and regulations. Where appropriate we may also share certain information you give us with our other offices (including in other countries) and select third parties. For further information (including details of your privacy rights and how to exercise them), see our updated Privacy Notice at www.bclplaw.com.



AMERICAN OVERSIGHT

Document 25

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:44 AM
**To:** Kolb, Ingrid
**Subject:** checking in...pls call at your convenience. (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:48 AM
**To:** McGinley, William J. EOP/WHO;Mocarski, Ashley D. EOP/WHO
((b) (6) )
**Subject:** (b) (5)

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 4:55 AM
**To:** CB Burnham
**Cc:** Assafe, Yordanos
**Subject:** RE: Biography | Office of the President | UTSA | University of Texas at San Antonio

Let's plan on a quick lunch then. I'll be there by 11:30.

---

**From:** CB Burnham [mailto:(b) (6) ]
**Sent:** Thursday, May 31, 2018 7:54 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** Re: Biography | Office of the President | UTSA | University of Texas at San Antonio

Thank you Brian. Can meet at Met Club around the corner for coffee or quick lunch too. (b) (6)

I really appreciate you doing this—thank you.

**********
Christopher Bancroft Burnham

On May 31, 2018, at 7:40 AM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Chris,
>
> I'll be downtown until 11:15. Will you be near the WH at that time?
>
> ---
>
> **From:** CB Burnham [mailto:(b) (6) ]
> **Sent:** Wednesday, May 23, 2018 7:46 PM
> **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> **Subject:** Biography | Office of the President | UTSA | University of Texas at San Antonio
>
> June 5. 11:30, your office?
>
> https://www.utsa.edu/president/biography/index.html
>
> # About Dr. Eighmy
>
> <iframe src="//www.googletagmanager.com/ns.html?id=GTM-TMNVDW" title="google tag manager" height="0" width="0" style="display:none;visibility:hidden"></iframe>



AMERICAN OVERSIGHT

# Biography



**Taylor Eighmy** is the 6th president of The University of Texas at San Antonio. In addition, Eighmy serves as a member of the UTSA faculty as a professor with appointments in the College of Engineering's department of Civil and Environmental Engineering, and the College of Sciences' department of Environmental Science and Ecology.

As an advocate for urban-serving public higher education, Eighmy is passionate about UTSA's role in developing San Antonio's knowledge economy by preparing future leaders and generating new knowledge that changes the world.

Eighmy brings a strong track record of advancing top research universities through strategic government collaborations, public-private partnerships and community engagement. Eighmy's experiences as an administrative leader, researcher, inventor and professor influenced his perspective as a champion of student success, particularly regarding the impact of experiential learning and undergraduate research programs.

Prior to arriving at UTSA in September 2017, Eighmy served as the chief research officer at three top public flagship universities: the University of New Hampshire, Texas Tech University and, most recently, at the University of Tennessee, Knoxville.

While at the University of Tennessee, Eighmy and colleagues at Oak Ridge



AMERICAN OVERSIGHT

National Laboratory directed efforts that resulted in the University of Tennessee's selection to lead the Institute for Advanced Composites Manufacturing Innovation, a $259 million public-private partnership supported by the U.S. Department of Energy.

**Education**
Ph.D. in Environmental Engineering - University of New Hampshire
M.S. in Civil Engineering - University of New Hampshire
B.S. in Biology - Tufts University

**Distinctions**

- Fellow, American Association for the Advancement of Science
- Fellow, National Academy of Inventors
- Diplomate, American Academy of Environmental Engineers and Scientists
- Inventor, Phosphate Mineral-Based Reactive Barrier Containment System (Patent US 6290637 B1)

**Research Interests**
Element speciation, environmental chemistry of leaching behavior, spectroscopic surface analysis, applied geochemistry, reactive barriers, reactive transport modeling, environmental microbiology, biofouling, biofilms, sustainability, carbon sequestration, carbon cycling, and recycled materials.

**Personal**
President Eighmy and his wife Peggy Eighmy have one daughter, Hannah, a NICU nurse at Children's National Medical Center in Washington, D.C. They enjoy fly fishing, hiking, cooking and playing with their three dogs.

*(Updated May 2018)*

# Join the President's Associates

If you are interested in becoming a President's Associates member, you can give directly online or contact Jessica Rios at 210-458-7705 or Jessica.rios@utsa.edu.



AMERICAN OVERSIGHT

<img height="1" width="1" style="display:none" src="https://www.facebook.com/tr?id=1702141916689197&ev=PageView&noscript=1"> <img src="//bat.bing.com/action/0?ti=5257293&Ver=2" height="0" width="0" style="display:none; visibility: hidden;"> <img height="1" width="1" style="display:none" src="https://www.facebook.com/tr?id=1102710886493041&ev=PageView&noscript=1"> <img height="1" width="1" style="display:none;" alt="" src="https://analytics.twitter.com/i/adsct?txn_id=ntolm&p_id=Twitter&tw_sale_amount=0&tw_order_quantity=0"> <img height="1" width="1" style="display:none;" alt="" src="//t.co/i/adsct?txn_id=ntolm&p_id=Twitter&tw_sale_amount=0&tw_order_quantity=0">

**********

Christopher Bancroft Burnham



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:05 AM
**To:** Smith, Wayne D;Wilmot, Dan
**Subject:** RE: ****WHITE HOUSE TASKING****

ok

---

**From:** Smith, Wayne D
**Sent:** Thursday, May 31, 2018 8:01 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: ****WHITE HOUSE TASKING****

Brian and Dan,

OP, GC, CI, IM, SC, and PA all cleared with no comments.

V/r,
Wayne

---

**From:** McCormack, Brian
**Sent:** Tuesday, May 29, 2018 6:46 PM
**To:** Smith, Wayne D <Wayne.Smith@hq.doe.gov>
**Subject:** RE: ****WHITE HOUSE TASKING****

That works

---

**From:** Smith, Wayne D
**Sent:** Tuesday, May 29, 2018 3:11 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** ****WHITE HOUSE TASKING****
**Importance:** High

Incoming from the Staff Secretary. Potential reviewers: OP, GC, CI, IM, SC, PA and S2 for awareness.

Is there anyone you would like for me to add or delete from the above list?

V/r,
Wayne

---

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Tuesday, May 29, 2018 2:02 PM
**To:** HookBH@state.gov; DonnellKL@state.gov; FrideresTF@state.gov; BrownCS@state.gov; Kenna, Lisa EOP <kennald@state.gov>; LoGerfoGD@state.gov; stm77@treasury.gov; Ryan.Brady@treasury.gov; Mohler, Hallock CAPT SD <Hallock.Mohler@sd.mil>; Matthew.Whitaker@usdoj.gov; Demi.Yeager@usdoj.gov; awilliams2@doc.gov; WTeramoto@doc.gov; ruth.knouse@dot.gov; geoff.burr@dot.gov; tom.cremins-1@nasa.gov; susanmb3@dni.gov; Scott_Hommel@ios.doi.gov; juliette_lillie@ios.doi.gov; Heidi.green@osec.usda.gov; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Smith, Wayne D <Wayne.Smith@hq.doe.gov>; christina.bobb@hq.dhs.gov;



AMERICAN OVERSIGHT

chad.wolf@hq.dhs.gov
**Cc:** Staff Secretary <(b) (6) >; dredl@ntia.doc.gov; patkins@ntia.doc.gov; dkhlopin@ntia.doc.gov; Rachael.bender@fcc.gov; Donald.stockdale@fcc.gov
**Subject:** (b) (5)

Attached please find a draft Presidential policy decision on developing a (b) (5) for America's future.

Affirmative clearance requested from: **State, DoD, DHS, DoJ, DoC, DoT, and NASA**. All other components are invited to comment, but affirmative clearance is not required.

Please send comments to Staff Sec by **10 AM Thursday, May 31**.

Thank you,

Staff Sec



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:05 AM
**To:** Smith, Wayne D;Wilmot, Dan
**Subject:** RE: ****WHITE HOUSE TASKING****

Hold on. How about CIO?

---

**From:** Smith, Wayne D
**Sent:** Thursday, May 31, 2018 8:01 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: ****WHITE HOUSE TASKING****

Brian and Dan,

OP, GC, CI, IM, SC, and PA all cleared with no comments.

V/r,
Wayne

---

**From:** McCormack, Brian
**Sent:** Tuesday, May 29, 2018 6:46 PM
**To:** Smith, Wayne D <Wayne.Smith@hq.doe.gov>
**Subject:** RE: ****WHITE HOUSE TASKING****

That works

---

**From:** Smith, Wayne D
**Sent:** Tuesday, May 29, 2018 3:11 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** ****WHITE HOUSE TASKING****
**Importance:** High

Incoming from the Staff Secretary. Potential reviewers: OP, GC, CI, IM, SC, PA and S2 for awareness.

Is there anyone you would like for me to add or delete from the above list?

V/r,
Wayne

---

**From:** Staff Secretary [(b) (6) ]
**Sent:** Tuesday, May 29, 2018 2:02 PM
**To:** HookBH@state.gov; DonnellKL@state.gov; FrideresTF@state.gov; BrownCS@state.gov; Kenna, Lisa EOP <kennald@state.gov>; LoGerfoGD@state.gov; stm77@treasury.gov; Ryan.Brady@treasury.gov; Mohler, Hallock CAPT SD <Hallock.Mohler@sd.mil>; Matthew.Whitaker@usdoj.gov; Demi.Yeager@usdoj.gov; awilliams2@doc.gov; WTeramoto@doc.gov; ruth.knouse@dot.gov; geoff.burr@dot.gov; tom.cremins-1@nasa.gov; susanmb3@dni.gov; Scott_Hommel@ios.doi.gov; juliette_lillie@ios.doi.gov; Heldi.green@osec.usda.gov; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Smith, Wayne D <Wayne.Smith@hq.doe.gov>; christina.bobb@hq.dhs.gov;



AMERICAN OVERSIGHT

chad.wolf@hq.dhs.gov
**Cc:** Staff Secretary (b) (6) ; dredl@ntia.doc.gov; patkins@ntia.doc.gov; dkhlopin@ntia.doc.gov; Rachael.bender@fcc.gov; Donald.stockdale@fcc.gov
**Subject:** FOR REVIEW: (b) (5)

Attached please find a draft Presidential policy decision on developing a (b) (5) for America's future.

Affirmative clearance requested from: **State, DoD, DHS, DoJ, DoC, DoT, and NASA.** All other components are invited to comment, but affirmative clearance is not required.

Please send comments to Staff Sec by **10 AM Thursday, May 31.**

Thank you,

Staff Sec



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:11 AM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Cc:** Hynes, Shaylyn;Wallwork, Luke
**Subject:** FW: Q&A
**Attachments:** s1cyber qandas.docx

**Importance:** High

Looping in DW.

---

**From:** Hynes, Shaylyn
**Sent:** Thursday, May 31, 2018 8:09 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Subject:** FW: Q&A
**Importance:** High

Hi- Just let us know whenever this is ok to send to the boss.

The moderator now also has his remarks as prepared to guide him. Should be pretty straightforward.

Thanks!

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 10:34 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>, Storch, Thomas <Thomas.Storch@hq.doe.gov>, Wallwork, Lnke <Luke.Wallwork@hq.doe.gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>
**Subject:** Q&A

Sorry for the delay. I've had major computer/email issues today and this evening.

These are just some of the initial thoughts/questions based on the call today with WSJ's Bradley Olson (the moderator). (b) (5)

Brian-Let me know whenever these are good to send to the boss..Hopefully he can review before or after the call in the morning.

Thomas-(b) (5)

Let me know if you all have any questions.



AMERICAN OVERSIGHT

Thanks!



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:18 AM
**To:** Hommel, Scott (scott_hommel@ios.doi.gov)
**Subject:** Question on Rare Earth Elements

Scott, I think DOI leads the interagency working group on this. If that's correct who is the lead person?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 7:06 AM
**To:** McGinley, William J. EOP/WHO
**Subject:** FW: THE HILL: Watchdog clears Perry's use of non-commercial flights, but advises policy change

Report was on non-commercial travel only...

# THE HILL: Watchdog clears Perry's use of non-commercial flights, but advises policy change

**0**

Energy Secretary Rick Perry follows all relevant policies and laws when he used charter or military aircraft for five flights last year, the Department of Energy's (DOE) internal watchdog found.

The DOE's Office of Inspector General (OIG) said in a Friday report that DOE "had not developed formal policies and procedures to justify and approve" the use of non-commercial aircraft for official travel, and investigators recommended that the department write such policies.

But otherwise, Perry followed the law and general policies from the White House's Office of Management and Budget, the report concluded. It also looked at four more trips on non-commercial aircraft by political employees in 2016, under the Obama administration.

"Although we did not find any instances where inappropriate trips were taken on Government aircraft, the suggested improvements should reduce the risk that Government aircraft is authorized in the future without appropriate justification and help ensure transparency in the Department's travel processes," April Stephenson, the deputy assistant inspector general, wrote to Perry.

Numerous Trump administration officials have been under scrutiny for using charter or military aircraft or first-class travel on the taxpayers' dime in cases where it might not have been necessary, including former Health and Human Services Secretary Price resigned under pressure last year due to his charter flights, and Veterans Affairs Secretary David Shulkin was forced out earlier this year over objections to his taxpayer-funded travel expenses.

DOE welcomed the Friday report.

"The Department has always believed that there has been no misuse of government aircraft by Secretary Perry and DOE staff. We appreciate the Inspector General's review which found nothing improper about the few instances where Secretary Perry and DOE staff have utilized non-commercial travel," said spokeswoman Shaylyn Hynes.



AMERICAN OVERSIGHT

Democrats on the House Energy and Commerce Committee, led by Rep. Frank Pallone (D-N.J.), had requested the OIG inquiry.

The OIG's report found that Perry used government planes owned by the Federal Aviation Administration or Defense Department on four trips last year at DOE's expense, and used a charter plane on one trip.

Each time, the uses were approved by the appropriate individuals at DOE, and were sufficiently justified due to scheduling, costs or other reasons.

Investigators said that DOE did not have policies implementing government-wide standards for documenting compliance with the rules, but labeled that as an "administrative issue."

"We did not find any indication that the trips reviewed were inappropriate."

Perry has defended the trips, and the use of non-commercial aircraft, as appropriate, given the needs of the department.

"I'm going to continue to do my job. I'm going to make the commitment to you that I'm going to try to do it in the most thoughtful and the most reasonable way to do that, but realizing that, from time to time, if I'm going to be in those places, and we're going to be there in a timely fashion, we may have to do it in a way that does expend some taxpayers' dollars," he told House lawmakers in October.

He added to the House panel that he usually chooses Southwest or United Airlines for his official travel.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 7:12 AM
**To:** Varnasidis, Sophia
**Subject:** FW: Good to talk with you earlier in the week
**Attachments:** On page Executive summary - 1366.docx

Please see request below.

---

**From:** Lehman, Rob <Rob.Lehman@wilmerhale.com>
**Date:** Thursday, May 31, 2018, 10:10 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Good to talk with you earlier in the week

Any chance you can help with this request? Thank you for considering.

---

**From:** Lehman, Rob
**Sent:** Friday, May 25, 2018 4:12 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Good to talk with you earlier in the week

Brian,

Here is a one pager on the issue we discussed. If there is any way you could help possibly get Mark Menezes or other possible senior DOE to meet with the company representatives that would be incredibly helpful. Here are the dates they are available, anytime May 30, May 31 or June 1, also the afternoon June 4, June 5 anytime June 6.

Thanks again and I hope you have a great Memorial Day.

Rob

**Rob Lehman | WilmerHale**
Senior Public Policy Advisor
1875 Pennsylvania Avenue NW
Washington, DC 20006 USA
+1 202 663 6907 (t)
+1 202 663 6363 (f)
rob.lehman@wilmerhale.com

**Please consider the environment before printing this email.**

This email message and any attachments are being sent by Wilmer Cutler Pickering Hale and Dorr LLP, are confidential, and may be privileged. If you are not the intended recipient, please notify us immediately—by replying to this message or by sending an email to postmaster@wilmerhale.com—and destroy all copies of this message and any attachments. Thank you.

For more information about WilmerHale, please visit us at http://www.wilmerhale.com.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 8:13 AM
**To:** Turenne, William
**Subject:** FW: layered maps
**Attachments:** IHS Markit April 2018--Ensuring_resilient_and_efficient_PJM_electricity_....pdf

Per convo

---

**From:** Menezes, Mark
**Sent:** Wednesday, May 30, 2018 5:25 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Cade, Steven <Steven.Cade@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** layered maps

Links to maps to overlay:
EIA:
https://www.eia.gov/state/maps.php?v=Electricity

Use this link to go to EIA's website displaying an interactive map of energy infrastructure. Using the Layers/Legend tool in upper right hand corner, delete all that is checked then layer in what you want to see--nat gas pipelines, then coal, then nukes. Right click on each and key information will pop up. Ideally, we would be able to modify this to our needs.

NERC report:
https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf

See map on page 17.

For closed and announced closure of nukes, see page 23 of attachment.

Mark W. Menezes
Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
Tel: (202) 586-8808

U.S. DEPARTMENT OF ENERGY



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 8:26 AM
**To:** Colgary, James
**Cc:** Menezes, Mark
**Subject:** FYI

Jim,

(b) (5)

This will be unclass.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 9:59 AM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** FW: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Varnasidis, Sophia
Sent: Thursday, May 31, 2018 12:57 PM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
Subject: RE: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Thursday, May 31, 2018 11:26 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: FW: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Mendoza, Jennifer
Sent: Thursday, May 31, 2018 11:17 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>; Wetzel, Jonathan <Jonathan.Wetzel@hq.doe.gov>
Subject: Detail for (b) (6)

Hi,

(b) (6)

Jennifer Mendoza
Office of Corporate Executive Management
Office of the Chief Human Capital Officer
U.S. Department of Energy
Forrestal Building, 4E-084
Jennifer.Mendoza@hq.doe.gov | 202.586.7056



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:00 AM
**To:** Winberg, Steven;Maddox, Mark;Storch, Thomas;Haus, Bob;Turenne, William;Habansky, Sarah;Hynes, Shaylyn
**Subject:** FW: World Gas Conference

fyi

-----Original Message-----
From: Mocarski, Ashley D. EOP/WHO [mailto:(b) (6)
Sent: Thursday, May 31, 2018 12:01 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: World Gas Conference

(b) (5)

-----Original Message-----
From: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Sent: Thursday, May 31, 2018 11:11 AM
To: Mocarski, Ashley D. EOP/WHO <(b) (6) >
Subject: World Gas Conference

Ashley-

The WGC is being held here in DC the last week of June. (b) (5)

Thanks.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:11 AM
**To:** Little, Douglas
**Subject:** how was yesterday?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:21 AM
**To:** Uddo, Joe;Colgary, James;Varnasidis, Sophia;Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** RE: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Thursday, May 31, 2018 11:26 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: FW: Detail for (b) (6)

(b) (6)

-----Original Message-----
From: Mendoza, Jennifer
Sent: Thursday, May 31, 2018 11:17 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>; Wetzel, Jonathan <Jonathan.Wetzel@hq.doe.gov>
Subject: Detail for (b) (6)

Hi,
(b) (6)

Jennifer Mendoza
Office of Corporate Executive Management
Office of the Chief Human Capital Officer
U.S. Department of Energy
Forrestal Building, 4E-084
Jennifer.Mendoza@hq.doe.gov | 202.586.7056



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:37 AM
**To:** Riggs, Charlotte R. EOP/WHO
**Cc:** Mocarski, Ashley D. EOP/WHO;Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** RE: FEMA Briefing

Secretary Perry will be there.

---

**From:** Riggs, Charlotte R. EOP/WHO [mailto: (b) (6) ]
**Sent:** Thursday, May 31, 2018 12:18 PM
**To:** Riggs, Charlotte R. EOP/WHO (b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) >
**Subject:** RE: FEMA Briefing

Good afternoon all,

I am emailing to **confirm** this hold for FEMA. If you have not already, please RSVP on behalf of your principal ASAP.

Thank you,
Charlotte

Charlotte Riggs
Office of Cabinet Affairs
The White House
M: (b) (6)

---

**From:** Riggs, Charlotte R. EOP/WHO
**Sent:** Tuesday, May 29, 2018 2:32 PM
**To:** Riggs, Charlotte R. EOP/WHO <(b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) >
**Subject:** FEMA Briefing

Hi all,

Cabinet Affairs kindly requests you hold June 6, 2018 from 2:00PM – 3:00PM for your principals attendance at the FEMA Briefing. This will take place at FEMA HQ.

Please standby for an APA.

Thank you,
Charlotte

Charlotte Riggs
Office of Cabinet Affairs
The White House
M: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 10:48 AM
**To:** Fibbe, George
**Subject:** RE: you in/around?

Give a call at your convenience.

-----Original Message-----
From: Fibbe, George
Sent: Thursday, May 31, 2018 1:39 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: you in/around?

Yes

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

-----Original Message-----
From: McCormack, Brian
Sent: Thursday, May 31, 2018 1:39 PM
To: Fibbe, George <George.Fibbe@hq.doe.gov>
Subject: you in/around?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 11:08 AM
**To:** Jewell, Matthew
**Subject:** RE: Farewell

Matt,

It has been great to have you part of the DOE team. (b) (6)

Best,
Brian

-----Original Message-----
From: Jewell, Matthew
Sent: Thursday, May 31, 2018 1:54 PM
To: Jewell, Matthew <Matthew.Jewell@hq.doe.gov>
Subject: Farewell

All,

As you may have already heard, tomorrow will be my last day at the Department of Energy.

(b) (6)

Wishing you all the best,

Matthew L. Jewell
Legislative Affairs Advisor
U.S. Department of Energy
Work: 202-586-5220
Matthew.Jewell@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 11:54 AM
**To:** Turenne, William
**Subject:** RE: layered maps

(b) (5)

---

**From:** Turenne, William
**Sent:** Thursday, May 31, 2018 2:38 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: layered maps

, (b) (5)

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 1:10 PM
**To:** Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** RE: layered maps

Ok. Anything to report?

---

**From:** Turenne, William
**Sent:** Thursday, May 31, 2018 11:29 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: layered maps

Thanks. I connected with Cade after we spoke.

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 11:12 AM
**To:** Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** FW: layered maps

Per convo

---

**From:** Menezes, Mark
**Sent:** Wednesday, May 30, 2018 5:25 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Cade, Steven <Steven.Cade@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>
**Subject:** layered maps

Links to maps to overlay:



AMERICAN OVERSIGHT

EIA:
https://www.eia.gov/state/maps.php?v=Electricity

Use this link to go to EIA's website displaying an interactive map of energy infrastructure. Using the Layers/Legend tool in upper right hand corner, delete all that is checked then layer in what you want to see--nat gas pipelines, then coal, then nukes. Right click on each and key information will pop up. Ideally, we would be able to modify this to our needs.

NERC report:
https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf

See map on page 17.

For closed and announced closure of nukes, see page 23 of attachment.

Mark W. Menezes
Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
Tel: (202) 586-8808

U.S. DEPARTMENT OF ENERGY



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Kyle Yunaska |
| **Location:** | Manhattan Project Conference Room |
| **Start:** | Thu 5/31/2018 12:00 PM |
| **End:** | Thu 5/31/2018 12:30 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Kyle Yunaska (kyle.yunaska@hq.doe.gov) |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 12:51 PM
**To:** Dabbar, Paul;Brouillette, Dan;Wilmot, Dan
**Cc:** Gordon-Hagerty, Lisa;Menezes, Mark;Colgary, James;Ellis, Kristen;Cubbage, Thomas;Vonglis, John G.;Burnison, Melissa
**Subject:** RE: Alaska debrief summary

Thank you, sir. This is very helpful. Adding in Melissa for awareness.

---

**From:** Dabbar, Paul
**Sent:** Thursday, May 31, 2018 3:33 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Cc:** Gordon-Hagerty, Lisa <Lisa.Gordon-Hagerty@nnsa.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Ellis, Kristen <Kristen.Ellis@em.doe.gov>; Cubbage, Thomas <Thomas.Cubbage@hq.doe.gov>; Vonglis, John G. <John.Vonglis@hq.doe.gov>
**Subject:** Alaska debrief summary

Deputy Secretary, Brian and Dan

I hope all is well.

We just completed the lab day set events with Senator Murkowski, and it turned out very well. She was very complementary of the very large turn out from the DOE complex.

We had 7 Lab Directors there from all three programs (SC, NNSA and Applied) as well as Assistant LD's from another 5 Labs. As well as Fall, Walker, and Simmons (and many others from the Department)

We had a number of specific take aways we reviewed with the Senator after the events which I will list below

(b) (5)

Specific takeaways from the event as discussed with the Senator:

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

Many thanks

Paul

---

Paul M. Dabbar | Under Secretary for Science | U.S. Department of Energy |
James V. Forrestal Building | Department of Energy Headquarters |
1000 Independence Ave, S.W., Washington D.C. 20585 USA |

Executive Assistant: Sabrina Smith | T: +1 202 586 5784 | Sabrina.Smith@em.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 12:52 PM
**To:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov)
**Subject:** FW: Summit Invitation
**Attachments:** Secretary Rick Perry.pdf; 2018 SUMMIT DRAFT AGENDA.pdf; PANEL 1 BRIEF SUMMARY AND QUESTIONS...pdf; THE PURPOSE OF THE SUMMIT.pdf

**From:** Clive Walker [mailto:clivewalker@trandersol.com]
**Sent:** Thursday, May 31, 2018 3:28 PM
**To:** Secretary Perry <The.Secretary@hq.doe.gov>
**Cc:** Allison Adams <allisonadams@trandersol.com>; Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Summit Invitation

May 31, 2018

Via Email:

The Honorable Rick Perry, Secretary
U.S. Department of Energy
1000 Independence Ave. SW
Washington DC 20585

Dear Secretary Perry:

Thank you for the opportunity to contact you regarding, the Eight-Dimensional economic Recovery Plan, ("EDERP" or "the Plan") for the United States. I am writing to you to invite you to be a guests speaker at the upcoming National Infrastructure Investment and Builder's Summit, that is scheduled for September 27, 2018. The summit is scheduled to be held at Rayburn House Office Building in Washington D.C.

The summit is being held to showcase the Eight-Dimensions of the Plan for the United States, and to bring together our leaders from the Legislative and Executive branch of government, governors from all states and selected public and private sector companies to view the innovative solutions that have been carefully crafted to be authorized and implemented in all 50 states and territories. Please see the attached formal invitation, draft program agenda, outline of information and the purpose of the summit for your review and consideration.

Thank you.

Very truly yours,
Clive Walker, CEO
clivewalker@trandersol.com
www.trandersol.com

Let's come together! Let's build – It's time.



AMERICAN OVERSIGHT

Clive V. Walker
Chief Executive Officer
TRANDERSOL, LLC
*Tronscending Energy Solutions™*
Phone: 954-347-8759
Address: 500 East Broward Boulevard. Suite 1710.
Fort Lauderdale, Florida 33394



****Confidentiality and Use Notice****

The information contained in this transmission contains confidential information. (Including any attachments). The information is the property of the sender and intended only for use by the individual or entity named above. The recipient of this information is prohibited from disclosing the contents of the information to another party.

If you are neither the intended recipient or the employee or agent responsible for delivery to the intended recipient, you are hereby notified that disclosure of contents in any manner is strictly prohibited. If you have received this information in error, please notify the sender immediately and arrange for the return or destruction of these documents. The receipt of the information contained in this document or its attachments must be used in accordance with the agreement between both parties and therefore does not constitute a right of recipient's and/or the property of the recipients.
Copyright© 1996-2018 TRANDERSOL, LLC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 12:52 PM
**To:** Szymanski, Jessica
**Subject:** RE: Talking points

obe

**From:** Szymanski, Jessica
**Sent:** Thursday, May 31, 2018 3:46 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Talking points
**Importance:** High

Hey Brian – are you looking for these talking points? Happy to help if you are, just figured I'd cut out all the middle men.

**From:** Ktenas, Bianca
**Sent:** Thursday, May 31, 2018 3:43 PM
**To:** Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>
**Cc:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Subject:** FW: Talking points
**Importance:** High

Do you know where this would be? Speech folder maybe?

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:49 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Ktenas, Bianca <Bianca.Ktenas@hq.doe.gov>
**Cc:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>, Matheney, Doug <Doug.Matheney@hq.doe.gov>, Maddox, Mark <MRMaddox@hq.doe.gov>, Theisz, David <David.Theisz@hq.doe.gov>
**Subject:** FW: Talking points

Hi Shaylyn and Bianca,

Please see below for a quick-turn request. I received Bob Haus' out of office that noted you as contacts in his absence.

If you could help, it would be greatly appreciated. I'm betting, hoping, that you may have materials at hand.

Thank you!

Kimberly D. Rasar
Deputy Assistant Secretary for Operations
Office of Fossil Energy
U.S. Department of Energy
(202) 586-4100



AMERICAN OVERSIGHT

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:43 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>
**Cc:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>, Theisz, David <David.Theisz@hq.doe.gov>, Maddox, Mark <MRMaddox@hq.doe.gov>, Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Subject:** FW: Talking points

Hi Bob,

Do you have talking points that S1 or S2 have used for a high level DOE Overview? Sorry for the short notice, but they are needed by very early a.m. for Brian McCormick who is talking for 20-30 minutes at the Mickey Leland event. I just got the request this evening. See below.

Let me know.

Thank you!

-Kimberly

---

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:17 PM
**To:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>
**Cc:** Theisz, David <David.Theisz@hq.doe.gov>, Perry, Alan F. <ALAN.PERRY@hq.doe.gov>
**Subject:** FW: Talking points

Gayland,

Could you reach out to PA and get very high level takers for a Department Overview that S1 or S2 may have used? This is a really quick turn. We need to provide this by 7:30 a.m. if possible.

-Kimberly

---

**From:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Date:** Wednesday, May 30, 2018, 9:14 PM
**To:** Matheney, Doug <Doug.Matheney@hq.doe.gov>
**Cc:** Barksdale, Gayland <Gayland.Barksdale@hq.doe.gov>, Perry, Alan F. <ALAN.PERRY@hq.doe.gov>
**Subject:** RE: Talking points

Doug,

I just got this. No worries. (b) (6)
I will have something by very early a.m.

-Kimberly

---

**From:** Matheney, Doug <Doug.Matheney@hq.doe.gov>



AMERICAN OVERSIGHT

**Date:** Wednesday, May 30, 2018, 5:40 PM
**To:** Rasar, Kimberly <Kimberly.Rasar@hq.doe.gov>
**Subject:** Talking points

Kimberly I hate to bother you but McCormick would like some talking points this evening that I can send to him for his speech tomorrow if you could get that to me a soon as possible that would be greatly appreciated.

Thank you

Doug



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 1:24 PM
**To:** Doug Davenport
**Cc:** Assafe, Yordanos
**Subject:** RE: Connecting

Yordanos- please arrange.

-----Original Message-----
From: Doug Davenport [mailto:(b) (6)
Sent: Thursday, May 31, 2018 4:23 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: Connecting

Hey Brian,

Any chance you might have 10 minutes for a quick call tomorrow?

Know you are busy, but I have an issue that I think is right up your/DOE's ally....

Let me know.....Thanks, man.....Doug



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 1:42 PM
**To:** Sneed, Michelle
**Cc:** Elfers, Kristen
**Subject:** RE: Manana

(b) (6)

---

**From:** Sneed, Michelle
**Sent:** Thursday, May 31, 2018 4:37 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Elfers, Kristen <Kristen.Elfers@hq.doe.gov>
**Subject:** Manana

Brian,
(b) (6)



AMERICAN OVERSIGHT

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:34 PM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** FW: (b) (6), (b) (7)(C)

**From:** (b) (6), (b) (7)(C)
**Sent:** Thursday, May 31, 2018 5:10 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** (b) (6), (b) (7)(C) Hanson, Deborah K <debby.hanson@pnnl.gov>
**Subject:** (b) (6), (b) (7)(C)

Brian,

(b) (6), (b) (7)(C)

Appreciate the help. Best,

(b) (6), (b) (7)(C)

U.S. Department of Energy
1000 Independence Ave.
Washington, DC 20585
Counterintelligence Website http://in.doe.gov//
(b) (6), (b) (7)(C)



AMERICAN OVERSIGHT

Document 51

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:36 PM
**To:** Bruce Fogerty;Assafe, Yordanos
**Subject:** next Wednesday

Yordanos,

Need to discuss 30 mins for Bruce on Wed. See me tomorrow.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:37 PM
**To:** Prochaska, Conner H.;Wilmot, Dan
**Subject:** RE: NASA ARPA-E iTech

What is the coordination, if any, with OSTP and VP's office (he has big NASA focus? Are you using the COMPETES ACT for any of this?

---

**From:** Prochaska, Conner H.
**Sent:** Thursday, May 31, 2018 5:35 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** NASA ARPA-E iTech

Brian & Dan,

Please let me know if anyone from the front office is interested in attending.

ARPA-E has partnered with NASA on an ideation competition NASA operates called iTech. iTech encourages U.S. entrepreneurs and researchers to submit their technology concepts to solve key challenges. For this cycle, iTech is seeking concepts for transformational energy technologies that could both improve space exploration and life on Earth.

The competition will culminate in the 2018 NASA iTech Energy Forum, which will take place June 13-14 at Citigroup global headquarters in New York City, NY. At this event, the top 10 iTech finalists will pitch their concepts and receive coaching from a select group of investors and government leaders. Additionally, the Forum will include panel discussions and keynotes from leaders in energy innovation and investment.

On Wednesday, June 13, the Forum will host a dinner featuring guest speakers, including the CEO of Citigroup Michael Corbat & Undersecretary Dabbar.

Sincerely,
Conner

Conner Prochaska
Senior Advisor and Chief of Staff
Advanced Research Projects Agency
Department of Energy
Office: (202) 586-1916
Cell: (b) (6)
Email: Conner.Prochaska@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 2:56 PM
**To:** Dabbar, Paul;Wilmot, Dan;Habansky, Sarah;Almstead, Deidre;Gerdes, Stan
**Subject:** RE: 6.1-6.12

Sounds good. Will have ScHeduling get pre brief time set and copying Sarah to pull any IG reports

Thanks!

---

**From:** Dabbar, Paul <Paul.Dabbar@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 5:53 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: 6.1-6.12

Brian, Dan

Hope all is well.

(b) (5)

Thanks

Paul

Paul M. Dabbar | Under Secretary for Science | U.S. Department of Energy |
James V. Forrestal Building | Department of Energy Headquarters |
1000 Independence Ave, S.W., Washington D.C. 20585 USA |



AMERICAN OVERSIGHT

Executive Assistant: Sabrina Smith | T: +1 202 586 5784 | Sabrina.Smith@em.doe.gov

---

**From:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 2:16 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Cc:** Colgary, James <James.Colgary@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, Haddad, Zead <Zead.Haddad@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Smith, Wayne D <Wayne.Smith@hq.doe.gov>, Muniz, Dan <Dan.Muniz@hq.doe.gov>, Chase, Keith <Keith.Chase@hq.doe.gov>, Bogle, James <James.Bogle@Hq.Doe.Gov>, Bobo, Fitzgerald <Fitzgerald.Bobo@hq.doe.gov>, Patterson, Donald <Donald.Patterson@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, Dabbar, Paul <Paul.Dabbar@hq.doe.gov>, Burnison, Melissa <Melissa.Burnison@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Gordon-Hagerty, Lisa <Lisa.Gordon-Hagerty@nnsa.doe.gov>, Naughton, Janet <Janet.Naughton@hq.doe.gov>, Travis, Owen <Owen.Travis@NNSA.DOE.Gov>
**Subject:** 6.1-6.12

Attached is the schedule the two week schedule- thanks!

Deidre



AMERICAN OVERSIGHT

Document 54

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 3:07 PM
**To:** Alexander.Gates@doe.gov
**Subject:** Awaiting your return phone call

Alex,

Checking on when I can expect your return phone call. BTW, your voicemail box is full.

Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 3:08 PM
**To:** Fitzsimmons, Alexander;Szymanski, Jessica;Wilmot, Dan;Hynes, Shaylyn;Turenne, William;Kinney, Sara;Habansky, Sarah;Simmons, Daniel
**Subject:** RE: Solar Prize Press Release

Thanks. And the part I was agreeing on was to Dan's point about including newsworthy items in the 30 day report.

---

**From:** Fitzsimmons, Alexander
**Sent:** Thursday, May 31, 2018 6:01 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** RE: Solar Prize Press Release

We'll work with Yordanos to find time to discuss.

---

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 5:59 PM
**To:** Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>; Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** RE: Solar Prize Press Release

Agree on that.

Daniel and Alex- need to discuss how this fits into ongoing solar trade issues.

---

**From:** Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 2:42 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Kinney, Sara <Sara.Kinney@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>, Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** Solar Prize Press Release

All,

EERE has finalized the rules for their Solar Prize competition and would like us to send out the attached draft release from DOE this coming Tuesday, June 5th. It includes a quote from S1 as well as Abby Hopper, President of SEIA.

I know the WH has interest in this competition so we'll be sure to flag for WH Coms. If any more coordination should be done on that front let us know.



AMERICAN OVERSIGHT

If anyone has any edits or concerns also let us know.

Thank you!
Jess



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 6:43 PM
**To:** McGinley, EOP/WHO
**Subject:** FW: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

FYI.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 9:42 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO <(b) (6) >
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

+raj on this reply. Thanks!

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 8:41 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

---

**From:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Date:** Thursday, May 31, 2018, 8:39 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

Thanks!

Sent from my iPhone



AMERICAN OVERSIGHT

On May 31, 2018, at 9:26 PM, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov> wrote:

*priveleged and confidential*

Sarah,

(b) (5)

(b) (5)

(b) (5)

Happy to discuss further if you have any questions.

Thanks,
Shaylyn

(b) (5)

= = =

---

**From:** Jennifer A. Dlouhy (BLOOMBERG/ NEWSROOM:) <jdlouhy1@bloomberg.net>
**Date:** Thursday, May 31, 2018, 6:45 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** comment sought re NSC meeting tomorrow, DOE action under FPA and DPA



AMERICAN OVERSIGHT

Shaylyn, I have a document making the case for and describing a planned DOE directive that would order the purchase of electricity or electric generation capacity from designated, at-risk power plants and establish a "Strategic Electric Generation Reserve" with the aim of promoting the national defense and maximizing domestic energy supplies.

There is an NSC meeting to discuss the intervention tomorrow. The idea is for this intervention to cover two years while DOE looks at other ways to address grid security challenges.

Do you wish to respond to this?

Thanks,
Jen.

---

---
Jennifer A. Dlouhy
jdlouhy1@bloomberg.net / (b) (6)
(b) (6)
Desk: 202.807.2159
Cell/Text/Signal: (b) (6)
Twitter: @jendlouhyhc
Stories: >http://bloom.bg/23Crpvk<



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Thursday, May 31, 2018 7:16 PM
**To:** Griffith, Preston W. EOP/NSC
**Subject:** FW: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

---

**From:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 10:10 PM
**To:** Ricardel, Mira R. EOP/WHO <(b) (6) >
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Sanders, Sarah H. EOP/(b) (5)
McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO <(b) (6) >, Tinsley, Sarah EOP/NSC <(b) (6)
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

Thanks, Mira. I think Bloomberg may have just posted a story.

---

**From:** Ricardel, Mira R. EOP/WHO <(b) (6) >
**Date:** Thursday, May 31, 2018, 10:08 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Sanders, Sarah H. EOP/WHO <(b) (6) >,
McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO <(b) (6) >, Tinsley, Sarah EOP/NSC (b) (6)
**Subject:** Re: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

Sent from my iPhone

On May 31, 2018, at 10:05 PM, Brouillette, Dan <Dan.Brouillette@hq.doe.gov> wrote:

Thanks, Shaylyn. (b) (5)

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 9:42 PM
**To:** Sanders, Sarah H. EOP/WHO (b) (6)



AMERICAN OVERSIGHT

**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Shah, Raj S. EOP/WHO (b) (6)
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

+raj on this reply. Thanks!

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 8:41 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

---

**From:** Sanders, Sarah H. EOP/WHO <(b) (6) >
**Date:** Thursday, May 31, 2018, 8:39 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

(b) (5)

(b) (5)

Thanks!

Sent from my iPhone

On May 31, 2018, at 9:26 PM, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov> wrote:

> *priveleged and confidential*
>
> Sarah,
>
> (b) (5)
>
> (b) (5)

(b)



AMERICAN OVERSIGHT

(b) (5)

Happy to discuss further if you have any questions.

Thanks,
Shaylyn

(b) (5)

= = =

---

**From:** Jennifer A. Dlouhy (BLOOMBERG/ NEWSROOM:) <jdlouhy1@bloomberg.net>
**Date:** Thursday, May 31, 2018, 6:45 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** comment sought re NSC meeting tomorrow, DOE action under FPA and DPA

Shaylyn, I have a document making the case for and describing a planned DOE directive that would order the purchase of electricity or electric generation capacity from designated, at-risk power plants and establish a "Strategic Electric Generation Reserve" with the aim of promoting the national defense and maximizing domestic energy supplies.

There is an NSC meeting to discuss the intervention tomorrow. The idea is for this intervention to cover two years while DOE looks at other ways to address grid security challenges.

Do you wish to respond to this?



AMERICAN OVERSIGHT

Thanks,
Jen.

---

Jennifer A. Dlouhy
jdlouhy1@bloomberg.net / (b) (6)

Desk: 202.807.2159
Cell/Text/Signal: (b) (6)
Twitter: @jendlouhyhc
Stories: >>http://bloom.bg/23Crpvk<<



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 2:59 AM
**To:** Brooke, Francis J. EOP/WHO
**Subject:** FW: Morning Energy, presented by America's Pledge: Oversight keeps up Pruitt probe — Report: Administration plans to order grid operators to bail out coal, nuke plants — Bishop breaks it down

Making sure you saw.

---

**From:** POLITICO Pro Energy <politicoemail@politicopro.com>
**Date:** Friday, Jun 01, 2018, 5:44 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Morning Energy, presented by America's Pledge: Oversight keeps up Pruitt probe — Report: Administration plans to order grid operators to bail out coal, nuke plants — Bishop breaks it down

By Kelsey Tamborrino | 06/01/2018 05:43 AM EDT

*With help from Anthony Adragna, Eric Wolff, Alex Guillén, Emily Holden and Darius Dixon*

**REPORT: TRUMP ADMINISTRATION PLANS TO ORDER GRID OPERATORS TO BAIL OUT COAL, NUKE PLANTS:** In an unprecedented move that's guaranteed to draw blowback, the Trump administration is planning to order U.S. grid operators to purchase electricity or generating capacity from struggling coal and nuclear power plants in a bid to prevent them from closing, Bloomberg's Jennifer Dlouhy reported late last night. According to a draft memo the news service obtained ahead of a National Security Council meeting on the topic today, the administration calls federal action "necessary to stop the further premature retirements of fuel-secure generation capacity." The 41-page document outlines a plan for the Energy Department to direct operators to buy the electricity from plants at risk of retirement — an unprecedented intervention by the government into U.S. energy markets, but one that is in line with President Donald Trump's desire to bolster the shrinking coal sector. Bloomberg reports the government would also establish a "Strategic Electric Generation Reserve" with the aim of promoting national defense and maximizing domestic energy supplies.

"**Too many of these fuel-secure plants** have retired prematurely and many more have recently announced retirement," only to be replaced by less-secure and less-resilient natural gas and renewable power sources, the memo, dated May 29 and distributed Thursday, said. The document describes a planned Energy Department directive, Bloomberg says, but there was no indication whether the president had signed off on the action nor when any order might be issued. POLITICO previously reported the NSC was taking the lead on determining whether the federal government should bail out struggling power plants. Read more.

**OVERSIGHT, NOT OUT OF MIND:** The House Oversight Committee is pressing ahead with its probe into EPA Administrator Scott Pruitt's ethics controversies and lavish spending. Pro's Anthony Adragna reports the committee has scheduled interviews for this month with Pruitt's chief of staff Ryan Jackson and his former top policy adviser, Samantha Dravis, according to a committee aide. The committee has already sat down with



AMERICAN OVERSIGHT

Pruitt's former security chief Pasquale "Nino" Perrotta, scheduler Millan Hupp and senior EPA counsel Sarah Greenwalt.

**The committee, chaired by Rep. Trey Gowdy,** is still in the process of scheduling an interview with Kevin Chmielewski, a former deputy chief of staff turned whistleblower. The aide said committee staff has been in touch with Chmielewski, who was already informally interviewed once before, and are trying to schedule a date for a transcribed session.

**Congressional Democrats, meanwhile, say they aren't worried** about keeping up the pressure on Pruitt. "This is a gift that keeps on giving and there are plenty of other people stepping forward and giving information to us," Sen. Tom Carper said last week. "He gives us new information, new things to explore all the time. I have a feeling he's going to continue doing that." Still, Democratic aides tell Anthony they're exploring new oversight options on Pruitt's use of extensive security on trips, his legal defense fund and the decision to list an Orange County Superfund site after a meeting requested by conservative radio and television host Hugh Hewitt.

**Even though the Oversight panel** and the EPA inspector general aren't expected to release their results for some time, Democrats tell Anthony they remain confident additional revelations will prove damning. Read more.

**HAPPY FRIDAY!** I'm your host Kelsey Tamborrino. McGinn Public Strategies' Joe McGinn was the first to correctly name the three presidents who got married while in office: Woodrow Wilson, John Tyler and Grover Cleveland. For today: Name the first president-vice president pair to serve together without military experience. Send your tips, energy gossip and comments to ktamborrino@politico.com, or follow us on Twitter @kelseytam, @Morning_Energy and @POLITICOPro.

*Pro subscribers: Are you getting all the content you want? Make sure your keywords are up to date and customized via your settings page at http://politico.pro/1iDALk9.*

**Register for the Pro Summit:** Join Pro subscribers, expert reporters and key decision-makers from the executive branch, federal agencies and Congress for a full day of incisive policy conversations on July 17. Learn more.

**BISHOP BREAKS IT DOWN:** House Natural Resources Chairman Rob Bishop has some thoughts about the inner workings of Congress, and the lawmaker from Utah laid them out for Anthony in a one-on-one interview here. Some takeaways:

— **On the filibuster:** "It doesn't matter who is majority and who is minority. They will never do anything because of the procedure. Personally, I'd like to get rid of the entire filibuster. I don't think it has any value whatsoever anymore."

— **On the role of outsiders:** "The biggest problem with just having someone come here for the first time is that you think this is the way it's supposed to be done. Those who have experience on state and local governments know there is another way of doing the job. That's why they become the biggest voices for reform back here."

— **One the House Freedom Caucus:** "I really think the Freedom Caucus is a response to the inability of getting things done because we have made it so procedurally difficult to accomplish the task."

— **On why he's the lone House lawmaker not to tweet:** "I don't think communication is enhanced by Twitter. When you do everything to be snarky and small — and you have to come up with something that's fast and biting — that's cute but it doesn't really enhance communication." He also notes, as a former history and



AMERICAN OVERSIGHT

grammar teacher, that: "I believe in words." **ME's thought:** It's ironic since Bishop has some of the best one-liners in Congress and is quite funny.

**SAB VOTES FOR REVIEW** : EPA's Science Advisory Board reconvenes for its second day of meetings today, and already its members have voted to conduct reviews of five of Pruitt's biggest regulatory rollbacks, as well as his science "transparency" proposal, Pro's Alex Guillén reports. The highly unusual move Thursday came after EPA declined to answer in any detail the initial questions from SAB members about how the agency ensured its proposals to undo the Obama EPA's rules were based on sound science. The five proposed rules SAB voted to review further include the Clean Power Plan, a carbon emissions rule for future power plants, a methane rule for new oil and gas well, emissions standards for 2022-2025 model cars, and a rule limiting emissions from "glider" trucks. More here.

**For his part, Pruitt wasn't present** at Thursday's meeting. When asked why, an agency spokesperson told ME the administrator was in Mississippi. Pruitt later tweeted from the state announcing water quality and crop production grants.

**EMISSIONS RULE MOVES FORWARD:** Bill Charmley, director of EPA's Assessment and Standards Division, confirmed to SAB on Thursday that the agency sent its proposal to roll back greenhouse gas emissions rules for vehicles to the White House Office of Management and Budget. The move kicks into gear an interagency review process and sets up what will likely be a contentious legal fight with California, which has authority to set its own greenhouse gas limits on tailpipe emissions. The New York Times reported earlier Thursday the rule would not revoke California's waiver outright, but would instead preempt the matter by saying the state can't use the waiver to require tougher standards than those set by the federal government. Bloomberg, however, reported via a source familiar with the matter that the administration's proposal would in fact rescind the waiver.

** **A message from America's Pledge:** America's Pledge is flipping the script on climate action. One year after the federal government announced it would pull out of the Paris Agreement, 2,700+ U.S. cities, states, and businesses are saying, "We Are Still In." See how far we've come: https://politi.co/2koAHZb **

**ONE YEAR LATER:** A year after Trump vowed to withdraw from the worldwide Paris climate agreement, Americans' planet-warming carbon emissions continue to decline, but at a slower rate than before, according to the most recent estimates available. Reductions are coming mostly from the power sector, and the Trump administration is not pursuing efforts to lower growing emissions from transportation, industry or buildings. "The Trump Administration, after conducting an interagency policy process, concluded that withdrawing from the Paris Climate Accord was the best decision for the United States and for the American people," White House spokeswoman Lindsay Walters told ME. "One year later, there has been no change in the U.S. position."

**Trump has filled out the upper ranks** of the government with officials who deny mainstream climate science, while the White House has ignored climate findings from its own agencies. Many states, cities and businesses are pledging to keep cutting their greenhouse gas contributions — although initiatives like America's Pledge have not yet quantified how close those entities could contribute to meeting the 2030 goal the U.S. set under the Obama administration.

**Other big emitters, China and India,** appear to be outperforming their own goals, although China's commitment still falls short of a path toward meeting the Paris deal's minimum target of limiting warming to 2 degrees Celsius, according to the independent Climate Action Tracker. Both countries continue to argue that they should get more flexibility since they are still developing, a stance that may be elevated at talks in Poland at the end of the year with the U.S. no longer a leading force at international discussions.



AMERICAN OVERSIGHT

**ALL EYES ON GRASSLEY, ERNST AS PRUITT PUSHES THE RFS ENVELOPE:** Iowa Sens. Chuck Grassley and Joni Ernst have issued a sea of angry statements opposing Pruitt's expanded use of the small refinery waiver from the Renewable Fuel Standard, but with news that Pruitt will now grant retroactive waivers, biofuel watchers are wondering whether the two will lower the boom.

**What may have been the proverbial last straw** for the camel was news reported on Thursday by Reuters that EPA was granting RFS compliance credits to HollyFrontier and Sinclair Oil because they had been denied waivers by Obama's EPA in 2014. The move, which is worth millions of dollars to both companies, makes clear that rather than curtailing the waivers, Pruitt will instead continue to find creative ways to grant them. Grassley, Ernst, and the rest of Gang Grain have been urging EPA to reassign the gallons lost to the waivers to large refiners, and if EPA agrees to that measure, they may be mollified. Reassignment has been the thrust of Agriculture Secretary Sonny Perdue's negotiations with EPA to this point.

**Ernst has been willing to throw her weight around in the past,** forcing Pruitt to issue a letter promising not to reduce biodiesel volumes in exchange for her vote to advance now-Air Administrator Bill Wehrum out of committee. EPA has two nominees awaiting hearings, but Ernst did not mention either of them in a statement issued Thursday. "Administrator Pruitt needs to understand that his actions to continue to grant waivers, now retroactively, to oil refineries is undermining the Renewable Fuel Standard — a program that Administrator Pruitt told Congress he was committed to upholding."

**FERC AGREES TO $2.7M FINE OVER 'SERIOUS' CYBER VIOLATIONS:** FERC has finalized the fine against a company for violating cybersecurity rules that the North American Electric Reliability Corp. said "posed a serious and substantial risk to the reliability" of the electric grid. The violations were outlined in a filing with FERC earlier this year, and regulators have agreed to uphold the settlement worked out between the Western Electricity Coordinating Council and the unnamed firm.

**The firm, which is labeled only as "Unidentified Registered Entity,"** neither admitted nor denied the violations but agreed to the fine as well as other sanctions. FERC mulled conducting its own review of the violations but ultimately accepted NERC's resolution this week. It's NERC's policy to not release the names of organizations or companies involved in security violations for fear that the information might be used to exploit a vulnerability.

**WHAT'S 'OFF THE TABLE?'** Democratic Sen. Bill Nelson has not forgotten about Interior Secretary Ryan Zinke's January trip to the Tallahassee airport, where he declared Florida "off the table" for offshore oil drilling. Nelson reiterated his request for more information on the comments in a letter sent Thursday to the secretary, following comments last week made by a Gov. Rick Scott campaign spokesman that the governor supports extending the moratorium on oil drilling in the Gulf of Mexico 125 miles out. An Interior Department spokeswoman told Florida's Bruce Ritchie that the department had no news to announce regarding its ongoing review of Zinke's initial proposal. Read the letter here.

**ZINKE STACKS UP INVESTIGATIONS:** The Center for Western Priorities will release new analysis today on ongoing investigations into Zinke's conduct. The analysis tabulated nine confirmed investigations by the agency's Office of Inspector General and by the U.S. Office of Special Counsel, with at least three more requested by members of Congress. According to the conservation group, the previous four Interior secretaries were the subjects to a combined 11 investigations over 16 years, with Gale Norton the subject of five of those investigations.

**ROUND TWO:** The U.S. and Canada closed out two-days of renegotiations this week to modernize the Columbia River Treaty regime, drawing back on regional recommendations made in 2013. During the two days, the State Department said the U.S. and Canadian negotiators discussed their respective objectives and outlined the scope of the talks. A senior U.S. government official called the negotiations "very productive," and said it



AMERICAN OVERSIGHT

included outlining the need for careful management of flood risk, ensuring a reliable and economical power supply and better addressing ecosystem concerns.

**U.S. lawmakers have specifically called out the so-called Canadian Entitlement,** which they say is too favorable to Canada. The senior official wouldn't go into the specifics of the renegotiations but said they are seeking "an equitable balance" on the issue. Asked about whether Trump's decision to impose sweeping tariffs on U.S. allies, as well as a host of other ongoing negotiations between the U.S. and Canada, would overshadow the talks, the senior official said they were "not aware of any discussions to merge the issues," but said they had "no information that suggests these negotiation will be impacted at this point." The two countries will hold the next round of discussions Aug. 15-16 in British Columbia.

**MAIL CALL!** Bishop, along with Reps. Bruce Westerman and Barbara Comstock, sent a letter Thursday to National Park Service Deputy Director Daniel Smith seeking clarification on the agency's policies for cooperative agreements. The Republican lawmakers urge transparency in the cooperative agreement negotiation between NPS and the Friends of Claude Moore Colonial Farm in McLean, Va., to help keep the farm open. Read the letter.

**LIGHTS, CAMERA, ACTION FUND:** The Center for Biological Diversity officially launched the Center Action Fund on Thursday — a 501(c)(4) organization devoted to electing county, state and federal lawmakers with pro-environmental values and a commitment to protecting endangered species. The action fund also announced its first endorsements in New Mexico and Nevada.

— **The NRDC Action Fund** will announce today that it is endorsing Minnesota Sen. Tina Smith in her campaign for the Senate.

**AD-ING IT UP:** The League of Conservation Voters is launching new Instagram story ads today in opposition of the Trump administration's move to roll back clean car emissions standards. See it here.

**MOVER, SHAKER:** Constant Power Inc. announced Miranda Ballentine would become CEO, effective today. Ballentine most recently served as managing director of Rocky Mountain Institute's Business Renewable Center. She succeeds the company's founder, Bryan Elliott, who will continue to serve as chairman of the board of directors.

**QUICK HITS**

— Official: 2 more months to restore power in Puerto Rico, Associated Press.

— Oil industry fears toll of Trump steel, aluminum tariffs, The Hill.

— Frozen Pluto has wind-blown dunes made of methane sand, Ars Technica.

— Pebble mine foes find an unlikely friend at EPA, E&E News.

— In a single day, the electric car boom gains speed in 3 states, Bloomberg.

— Companies take first steps to drill for oil in Arctic National Wildlife Refuge, The Washington Post.

**HAPPENING TODAY**

2:00 p.m. — House Natural Resources Committee hearing on Colorado natural gas and oil, Grand Junction, Colo.



AMERICAN OVERSIGHT

**THAT'S ALL FOR ME!**

** **A message from America's Pledge:** One year after President Trump announced plans to withdraw from the Paris Agreement, America's Pledge is showing the world that U.S. cities, states, and businesses can lead us towards our goals - with or without Washington. https://politi.co/2koAHZb **

*To view online*:
https://subscriber.politicopro.com/newsletters/morning-energy/2018/06/oversight-keeps-up-pruitt-probe-238371

**Stories from POLITICO Pro**

**Sources: NSC to study security risk from coal, nuclear power plant shutdowns** Back

By Eric Wolff | 05/25/2018 04:30 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**Pruitt taps outside attorney for help amid investigations** Back

By Andrew Restuccia and Emily Holden | 05/16/2018 04:36 PM EDT

EPA administrator Scott Pruitt has tapped a white-collar defense lawyer to advise him as he grapples with a dozen federal investigations into his activity, according to two people familiar with the situation.

Paul Rauser, co-founder of the firm Aegis Law Group, has been assisting Pruitt for several weeks as the Environmental Protection Agency chief faces fierce scrutiny on everything from his international travel and his lavish spending to his $50-per-night lease in a Capitol Hill condo owned by the wife of an energy lobbyist, these people said. Rauser has recently been spotted at EPA headquarters, according to the people.

Rauser "focuses on domestic and international white-collar criminal defense, corporate internal investigations, and high-stakes commercial litigation and arbitration," according to Aegis' website. He has advised clients on lobbying and campaign finance issues, in addition to representing companies and individuals facing investigations by Congress and the executive branch, the firm's website says.

Neither Rauser nor an EPA spokesman responded to a request for comment.

Pruitt has lost the confidence of many White House staffers, who along with some outside advisers to the president have begun privately expressing frustration that Trump hasn't fired his EPA chief amid the cascade of scandals, according to four current or former White House officials and advisers.

"He's somehow managed to hang on," said one former White House official. "It's amazing."

But Trump is not yet ready to push Pruitt out, according to two of the officials, even though he is beginning to sour on him.



AMERICAN OVERSIGHT

"The president has grown weary, but he hasn't yet gotten to the point that he wants to fire him," the former White House official said. "But the president is no longer going to step into the breach and defend him."

For now, Trump is more focused on other issues, including trade negotiations with China and his possible summit with North Korean dictator Kim Jong Un. But he is aware of — and unhappy with — the string of damaging stories about Pruitt, according to White House aides.

One recent story in particular got the president's attention: a report that conservative radio and television host Hugh Hewitt brokered a meeting with Pruitt to push for the cleanup of a polluted site in California. The story reignited Trump's lingering frustrations with Hewitt, who he believes was unfairly critical of him during the presidential campaign, according to a Republican close to the White House.

White House aides had hoped that Pruitt would be able to get out ahead of the nonstop stream of negative news stories about him. But Pruitt's seeming inability to stop the bleeding has infuriated many in the West Wing, who are sick of having to answer questions about his behavior.

"There's this slow erosion of confidence that he'll be able to handle this stuff in any meaningful way," said a White House official. "'Where does this end?' is a pretty fair question."

Two White House aides said they believe Pruitt could be fired if a series of pending investigations reveal new damaging information about the EPA chief.

For now though, Pruitt is in limbo. "He's in that dead man zone that Rex Tillerson was in," said a Republican close to the White House, referring to Tillerson's months-long slow-motion demise.

Pruitt told lawmakers during a Senate hearing on Wednesday that he has established a legal defense fund, adding that donations to the fund will be made public and he would not solicit contributions from lobbyists or corporations with business before the agency.

Another lawyer working with Pruitt, Foley and Lardner partner Cleta Mitchell, helped set up the fund, according to a person familiar with the issue. The Washington Post first reported Mitchell's involvement in the fund.

Mitchell, in an email, confirmed that Pruitt is her client, but declined to comment further. "Scott has been a friend and client for a number of years — we are both from Oklahoma," she said.

*Nancy Cook contributed to this report.*

*To view online click here.*

Back

**Pruitt fast-tracked California cleanup after Hugh Hewitt brokered meeting** Back

By Emily Holden and Anthony Adragna | 05/07/2018 10:12 PM EDT

EPA Administrator Scott Pruitt placed a polluted California area on his personal priority list of Superfund sites targeted for "immediate and intense" action after conservative radio and television host Hugh Hewitt brokered a



AMERICAN OVERSIGHT

meeting between him and lawyers for the water district that was seeking federal help to clean up the polluted Orange County site.

The previously unreported meeting, which was documented in emails released by EPA under a Freedom of Information Act lawsuit by the Sierra Club, showed Pruitt's staff reacting quickly to the request last September by Hewitt, who has been one of Pruitt's staunchest defenders amid a raft of ethics controversies around his expensive travel, security team spending and a cheap Washington condo rental from a lobbyist.

Pruitt has drawn criticism from environmentalists and other critics for letting prominent GOP backers and industry groups influence the agency's agenda — even as he has kicked scientists off of EPA's advisory panels and moved to limit the kinds of peer-reviewed research it will consider when making decisions.

In many cases, the people whose advice Pruitt is heeding could be useful supporters for him in a future race for U.S. senator or president. They include GOP megadonor Sheldon Adelson, who — as POLITICO reported in March — persuaded Pruitt last year to take a meeting with an Israeli water purification company called Water-Gen that later won a research deal with the EPA.

Hewitt, a resident of Orange County whose son James works in EPA's press office, emailed Pruitt in September to set up a meeting between the administrator and the law firm Larson O'Brien, which employs Hewitt and represents the Orange County Water District. Pruitt had been planning to meet with the lawyers in California a month earlier, but cancelled the trip to undergo knee surgery.

"I'll join if the Administrator would like me too or can catch up later at a dinner," Hewitt wrote in his Sept. 18 message. Hewitt added that the issues surrounding the Superfund site were "Greek to me but a big deal in my home county."

Pruitt's aides responded within minutes and quickly confirmed an Oct. 18 meeting for the lawyers and a project director.

Six weeks after that meeting, on Dec. 8, the Orange County North Basin site appeared on Pruitt's list of 21 contaminated areas to address. A month later, Pruitt proposed listing the site on EPA's National Priorities List, a move that could make it eligible for long-term federal cleanup funding from the federal government if the responsible polluters cannot be identified and forced to pay for its remediation.

Since then, Hewitt has been a robust defender of Pruitt, dismissing his recent controversies as "nonsense scandals" on MSNBC in early April and saying his detractors were "just trying to stop the deregulation effort."

Pruitt has touted the agency's Superfund work as one of his key priorities, setting up a task force to seek to speed up the clean-up of the nation's worst contaminated sites. That task force had been headed by Albert "Kell" Kelly, a former banker and longtime friend, who departed the agency last week after news about loans he provided to Pruitt in Oklahoma, including the mortgage provided to Pruitt for a house he bought from a lobbyist when he was a state senator.

Environmental advocates have worried Pruitt's efforts to identify Superfund priority sites would bypass the process set up by Congress to ensure cleanup resources are divided fairly, and that he could focus on sites seen as important to his political supporters. And environmentalists have said Pruitt's rush to claim that contaminated properties have been remediated could risk turning them over to local governments and businesses that might pursue cheaper, inadequate solutions.

Elgie Holstein, senior director for strategic planning at the Environmental Defense Fund who has been tracking EPA's Superfund actions, said the connection to Hewitt is "not a surprise."



AMERICAN OVERSIGHT

"The biggest fear we have is that No. 1, the administrator's political priorities and personal ambitions, political ambitions become the primary criteria for action under this program instead of science and health," Holstein said.

EPA never disclosed the meeting with Hewitt's contacts. It was listed on Pruitt's public calendar as a staff briefing. But on his private Outlook schedule, which the agency has released in response to lawsuits, it appeared as an "Orange County Superfund Site" meeting with Kelly and two other staffers. The records did not list the Californians in attendance at the meeting at EPA headquarters in Washington.

But EPA spokesman Jahan Wilcox confirmed that two lawyers representing the water district, Robert O'Brien and Scott Sommer, and the water district director of special projects, Bill Hunt, were there. A third lawyer, former federal Judge Stephen G. Larson, was forced to cancel his trip due to wildfires in California, according to emails.

"Hugh Hewitt helped arrange the meeting at the request of the water district but did not attend," Wilcox said.

Wilcox said the meeting was for the water district to "brief EPA on the Superfund site's cleanup efforts and request expedited cleanup," following a 2016 agreement with the agency to conduct a remedial investigation and feasibility study, at a cost of $4 million over two years. Hunt did not immediately respond to a request for comment.

Hewitt in an email to POLITICO called Pruitt a friend and said he does not have a working relationship with him. He said that his firm has represented the water district and worked on the site with EPA's regional office for years but that he had not participated in that work.

Hewitt said he requested a meeting because the water district wanted to brief the new EPA team, he said, adding that he was an Orange County resident until 2016 as well as an Orange County Children and Families Commission member. He said that he "very much" wanted the Superfund site remediated as soon as possible.

According to an EPA fact sheet, the Orange County site has more than five square miles of polluted groundwater containing chlorinated solvents and other contaminants across the cities of Anaheim, Fullerton, and Placentia. It includes the Orange County Groundwater Basin, which provides drinking water to more than 2.4 million residents across 22 cities, according to the agency. Those pollutants can damage humans' nervous systems, kidneys and livers, and some are considered carcinogenic.

EPA has just begun its process of studying the contamination and it has not determined which companies caused the pollution in the area. But an administrative settlement with the EPA in 2016 says the area was home to "electronics manufacturing, metals processing, aerospace manufacturing, musical instrument manufacturing, rubber and plastics manufacturing, and dry cleaning."

Hewitt also thanked EPA schedulers for working to arrange a meeting between Pruitt and the California Lincoln Clubs, which describe themselves as in favor of "limited government, fiscal discipline and personal responsibility." After some rescheduling Pruitt eventually met with representatives of the group on a trip to California in March of this year, according to his public calendar. Prominent Orange County businessman John Warner also helped to connect that group with staffers.

Pruitt and his scheduling staff have frequently sought to set up meetings with or for influential Republican figures, according to the internal EPA emails.

His team accepted an invitation for him to address The Philanthropy Roundtable at an invitation-only event at the White House for "conservative and free-market foundation CEOs and individual wealth creators to discuss



AMERICAN OVERSIGHT

the greatest opportunities for foundations to protect and strengthen free society" and "what [Pruitt] views as unique opportunities for philanthropic action.

As POLITICO reported in March, Pruitt also met with an Indiana coal executive and Trump fundraiser who was seeking to soften a pollution rule.

Pruitt also crafted his travel schedule — including a tour of states in August — to meet with big business much like a member of Congress would during the annual recess.

In July, EPA's associate administrator of public engagement Tate Bennett was working with Pruitt to "essentially create an August recess for the EPA to be out in the states talking with individual companies & doing listening sessions within sectors," said Leah Curtsinger, the federal policy director for the Colorado Association of Commerce & Industry, in an email introducing Bennett to her husband, public affairs director at coal company Cloud Peak Energy and a fellow alum of Senate Majority Leader Mitch McConnell's office.

*Annie Snider contributed to this report.*

*To view online click here.*

Back

**POLITICO Pro Q&A: House Natural Resources Chairman Rob Bishop** Back

By Anthony Adragna | 05/31/2018 04:41 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**EPA science advisers vote to review Pruitt rule rollbacks** Back

By Alex Guillén | 05/31/2018 07:26 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**Carmakers facing crucial White House meeting** Back

By Eric Wolff | 05/11/2018 05:03 AM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*Alex Guillén contributed to this report.*

*To view online click here.*

Back

**Climate change skeptics run the Trump administration** Back

By Emily Holden | 03/07/2018 05:07 AM EDT

President Donald Trump is filling the upper ranks of his administration with appointees who share his disbelief in the scientific evidence for climate change — giving them an opportunity to impose their views on policies ranging from disaster planning to national security to housing standards.

At the Interior Department, decisions about Pacific island territories threatened by rising seas are in the hands of an assistant secretary who has criticized "climate alarmists" for "once again predicting the end of the world as we know it." Agriculture Secretary Sonny Perdue's top advisers include a former talk radio host who has dismissed much climate research as "junk science." Trump's nominee to head research and technology at the Department of Transportation claimed three years ago that global warming had "stopped" — a position at sharp odds with the findings of federal agencies like NASA.

Trump has chosen at least 20 like-minded people to serve as agency leaders and advisers, according to a POLITICO review of his appointees' past statements on climate science. And they are already having an impact in abandoning former President Barack Obama's attempt to help unite the world against the threat of rising sea levels, worsening storms and spreading droughts.

Most famously, the president and his team have scrubbed mentions of climate change from government websites, kicked scientists off advisory boards, repudiated the Obama administration's greenhouse gas regulations and made the U.S. the only nation on Earth to reject the 2015 Paris agreement on global warming.

More quietly, Trump's White House excluded rising temperatures from the list of threats in its December national security strategy, contradicting the approach of both the Obama and George W. Bush administrations. Last year, just before Hurricane Harvey drowned Houston, the White House rescinded requirements that projects built with federal dollars take into account the way warming temperatures might intensify extreme weather.



AMERICAN OVERSIGHT

People worried about the consequences of climate change say a government that denies the problem is courting danger.

"The analogy could be if somebody's got a heart problem or high cholesterol, you take medicine that helps manage that so you can avoid a heart attack," said Ana Unruh Cohen, the government affairs director at the Natural Resources Defense Council. "Trump taking that away, saying, 'Forget it, I don't believe I have high cholesterol,' is setting up the country for a heart attack."

Aparna Mathur, a resident scholar in economic policy at the conservative American Enterprise Institute, found the trend worrying as well.

Many administration officials "don't seem to believe climate change is real, or if they believe climate change is real, there's this sort of attitude that there's not much to do about it or it's not caused by human actions," said Mathur, whose AEI colleagues also include people who question the extent of man-made climate change. As a result, she said, the U.S. is falling behind countries that are taking action on the problem.

The doubts are coming from both prominent and little-known Trump appointees, in ways both obscure and subtle.

Some have expressed doubt that the Earth is warming at all, speculated that the trend might be good for humans, or said it's just impossible to know how much of a role humans and their pollution are playing. All these statements fly in the face of findings by the government's own research agencies and the vast majority of climate scientists.

"There are scientists that think lots of different things about climate change," then-Rep. Mike Pompeo (R-Kan.), now Trump's CIA director, said on C-SPAN in 2013. "There's some who think we're warming, there's some who think we're cooling, there's some who think that the last 16 years have shown a pretty stable climate environment." Pompeo dodged the issue in his confirmation hearing last year, saying he would "prefer today not to get into the details of the climate debate and science."

When he was running for president, HUD Secretary Ben Carson scoffed at the idea that strong evidence for human-caused climate change even exists. "I know there are a lot of people who say 'overwhelming science,' but then when you ask them to show the overwhelming science they never can show it," he told the San Francisco Chronicle in 2015.

Few have been as publicly outspoken on the issue as Trump, who more than once has dismissed human-caused climate change as a "hoax" and claimed in January that polar ice isn't melting.

The White House sought to strike a somewhat more moderate tone in a statement to POLITICO on Monday, which said that "the climate has changed and is always changing. The Administration supports rigorous scientific analysis and debate." The statement from principal deputy press secretary Raj Shah added that "the development of modern and efficient infrastructure ... will reduce emissions and enable us to address future risks, including climate related risks."

Some of the administration's climate skeptics have already come and gone.

Former HHS Secretary Tom Price, who had criticized the "allegedly 'settled science' of global warming" as a member of Congress, resigned in September amid criticism of his expensive travels on government and private planes. Kathleen Hartnett White, Trump's pick to head the White House Council on Environmental Quality, withdrew her nomination earlier this year after she stirred criticism with a long list of controversial statements , including calling the human role in climate change "very uncertain."



AMERICAN OVERSIGHT

Another unsuccessful nominee, former talk radio host and political science professor Sam Clovis, had to pull out of the running to be USDA's chief scientist after critics noted that he has no science credentials — but he remains a top adviser to Perdue. Clovis dismissed much climate research as "junk science" in a 2014 interview, adding that "a lot of this global warming ... is really about income redistribution from rich nations that are industrialized to nations that are not."

Brent Fewell, a conservative environmental lawyer who was an EPA water official under Bush, suggested that some of these officials may privately acknowledge that man-made climate change is real. But he added: "A lot of people on the political right are uninformed about the issue. For whatever reason, it's a lot easier to simply agree with the prominent voices in the political party."

The upshot is the same, however: a 180-degree reversal from Obama's efforts to make the U.S. a leader in addressing the causes and consequences of a warming planet.

The EPA is leading the charge by withdrawing or weakening a host of climate regulations, including a 2015 rule that would have sped the electric power industry's shift away from coal-fired energy. Trump has also approved tariffs for solar panel imports, which will make it harder for green energy to compete with fossil fuels. Agencies have sought to cancel rules meant to limit the oil and gas industry's methane pollution — another major greenhouse gas source — and are reconsidering tougher standards for vehicles, too.

The Energy Department has proposed regulatory changes to prop up coal plants that can't compete in the market, while the White House is seeking buyers for U.S. coal and gas exports.

When Trump's critics seek to challenge these actions in court, the government's defense will be run by the Justice Department — an agency whose leader, Attorney General Jeff Sessions, said during a 2015 Senate hearing that carbon dioxide is "really not a pollutant."

"It's a plant food, and it doesn't harm anybody except that it might include temperature increases," Sessions said.

Some agencies are still continuing to study climate change and factor their findings into their policy decisions. But even there, career staffers may not talk about their work as openly as they once did, and the agencies seldom showcase it the way they did during the Obama years.

Much of the alarm among Trump's critics focuses on EPA, which has replaced dozens of scientists on its key advisory boards with industry or state representatives, and has found other ways to keep researchers from contradicting the administration's message. Last fall, the agency canceled an appearance by three EPA scientists scheduled to speak about climate change at a Narragansett Bay conference . Both EPA and the Energy Department have given extra scrutiny to grant proposals with the words "climate change," and in the case of EPA, it has put a political appointee in charge of signing off on them, The Washington Post has reported.

All this is in line with the public statements of EPA Administrator Scott Pruitt, who has suggested that global warming might be a good thing and has spoken about holding a public debate on whether climate change is real.

"Right out of the gate ... the administration took any and all mention of climate change off of the White House website," said Jacob Carter, a research scientist who has been tracking the administration's treatment of science for the Union of Concerned Scientists. "It seems like the administration is really trying to undo a lot of the scientific process as a whole and get experts out of the way."

The Environmental Data and Governance Initiative, which has studied the purging and rewording of climate-related documents on government websites, reported at the end of 2017 that it had found a "significant loss of public access to information about climate change."



AMERICAN OVERSIGHT

The State Department's website took down links related to the Paris climate agreement, EPA removed a student's guide to climate change, and the Energy Department got rid of the words "clean energy" on a page with information for investors and businesses looking for projects with national laboratories.

The Interior Department's Bureau of Land Management, which oversees energy development on federal land, cut text about the effects of climate change. Some of the resources are still technically available in archives or in new locations, but they are harder to find because the government sites don't directly link to them, the Environmental Data and Governance Initiative says.

"It's not alarming the public because it's very hard to see each incremental thing," said Andrew Bergman, a co-author of the report.

Some Trump appointees have downplayed the idea that agency leaders' personal views about climate change are critical to making policy, suggesting they can still respond to global warming's effects without addressing why it's happening.

"We continue to take seriously climate change — not the cause of it, but the things that we observe," Tom Bossert, the president's homeland security adviser, told reporters after last year's spree of catastrophic hurricanes that ravaged Houston, Puerto Rico and the Virgin Islands.

Sarah Hunt, who works in energy policy at the conservative American Legislative Exchange Council, said that "policymaker views on climate science needn't have any bearing on their support for conservative clean energy policies that spur the innovation we need to reduce emissions and promote environmental stewardship while we grow our economy."

But Trump's actions have reflected his views on the science. For example, one of his early executive orders in March 2017 eliminated a number of ways agencies had been required to consider climate change, including in environmental reviews for infrastructure projects.

Because so many of his appointees have questioned the conclusions of climate scientists, they are jettisoning climate change from routine processes. Those include EPA's refusal to consider the global monetary benefits of curbing rising temperatures when it rolled back Obama-era rules for the power sector.

Still, some agencies have continued to issue major reports that warn that climate change is a real and growing problem — even as the president's staffers push the message that the science is uncertain.

In November, the government's 13-agency National Climate Assessment concluded that humans have pushed global temperatures to their highest level in modern times. In January, NASA published data showing that last year was the second-warmest on record, and noted that temperature rises are "driven largely by increased carbon dioxide and other human-made emissions into the atmosphere."

Trump's nominee to run the space agency, Rep. Jim Bridenstine (R-Okla.), criticized "climate change alarmists" on the House floor in 2013 and claimed that "global temperatures stopped rising 10 years ago." (In fact, they haven't.) At his confirmation hearing last year, he acknowledged that humans are a cause of climate change but wouldn't call them the main cause.

"That is a question that I do not have an answer to," he said.

*To view online click here.*



AMERICAN OVERSIGHT

Back

**Florida lawmakers rip Trump plan to ease offshore drilling rule** Back

By Ben Lefebvre | 04/27/2018 04:26 PM EDT

(b) (4)



AMERICAN OVERSIGHT

(b) (4)

*To view online click here.*

Back

**Republicans gobsmacked by Trump's tariffs** Back

By Burgess Everett | 05/31/2018 01:48 PM EDT

Republicans are bitterly protesting the Trump administration's decision to impose sweeping tariffs on U.S. allies — alarmed that the White House ignored their frenzied lobbying campaign and afraid that the party could suffer at the polls in November.

The GOP's free-traders were mollified this spring as the Trump administration exempted U.S. allies from steel and aluminum tariffs imposed on other countries like China. But on Thursday, that all changed as President Donald Trump imposed 10 percent tariffs on aluminum imports and 25 percent tariffs on steel imports from the European Union, Canada and Mexico.

The move thrusts the GOP back into an internecine war over free-trade policies that have defined the party for decades, just as Republicans mobilize for a hotly contested midterm campaign.

Sen. Pat Toomey (R-Pa.) called it "bad news" and predicted imminent retaliation from the key U.S. allies. Senate Finance Chairman Orrin Hatch (R-Utah) said there is "mounting evidence that these tariffs will harm Americans." And Sen. Ben Sasse (R-Neb.) warned that similar policies 90 years ago sparked the Great Depression.

"This is dumb. Europe, Canada, and Mexico are not China, and you don't treat allies the same way you treat opponents," Sasse said. "'Make America Great Again' shouldn't mean 'Make America 1929 Again.'"



AMERICAN OVERSIGHT

Senate Foreign Relations Chairman Bob Corker called the move an "abuse of authority only intended for national security purposes."

"This is a big mistake. These tariffs will raise prices and destroy manufacturing jobs, especially auto jobs, which are one-third of all Tennessee manufacturing jobs," said Sen. Lamar Alexander (R-Tenn.), who said tariffs are "basically higher taxes on American consumers."

Most Republicans believed that the Trump administration's tariffs on aluminum and steel would be relegated to China and that exemptions for allies would continue into the summer. So Congress was largely blindsided by the administration's reversal.

Most senior Capitol Hill staffers weren't notified of the decision until late Wednesday, and briefings on the new policies weren't conducted until Thursday, according to Republican sources. Congressional leaders were briefed on Thursday morning, according to a person familiar with the matter.

Rank-and-file lawmakers were similarly caught off-guard, having hoped that their campaign against Trump's protectionist instincts would bear fruit.

"I don't like trade wars. There are no winners in trade wars. There are only losers. And this scares me," said a Republican senator. "A lot of us have talked to him, in person, repeatedly about this. He knows where we stand on it."

The administration defended the tariffs as protecting domestic steel and aluminum industries. White House spokesman Raj Shah said tariffs on Canada and Mexico are aimed at China and enhancing national security.

"The president's actions are about protecting American steel, American aluminum. They're critical for national security. And he's worked to exempt certain countries and certain allies for which we have trading or security relationships. But in these instances it wasn't possible and the president took action," Shah said on Fox News.

The U.S. has reached steel agreements with South Korea and Brazil, and agreements on both steel and aluminum with Australia and Argentina, the administration said. But that is little consolation to congressional Republicans who are furious about the administration punishing Canada, Mexico and Europe.

"The Trump administration's trade policy is a disaster. Whacking critical allies with massive steel and aluminum tariffs under the bogus pretense of a national security threat is not in the best interest of the United States, our consumers or our businesses," said a senior Republican aide.

Indeed, trade is the area where Republicans have grown most uncomfortable with the president. They generally tolerate his over-the-top Twitter account and have grown accustomed to his coarse rhetoric, in part because he has enacted and supported many of the center-right policies that the GOP has pursued for years, such as confirming conservative judges and cutting taxes.

Republicans worry that Trump's protectionist trade policies could undermine all that and threaten a healthy economy before the midterm elections. Yet House Speaker Paul Ryan (R-Wis.) and Senate Majority Leader Mitch McConnell (R-Ky.) have shown no interest in passing legislation to block Trump's tariffs or require congressional approval, a move that would essentially bring Capitol Hill to a standstill.

"I disagree with this decision," Ryan said in a statement. "There are better ways to help American workers and consumers. I intend to keep working with the president on those better options."



AMERICAN OVERSIGHT

Indeed, Republicans seem to believe their only move is to complain as loudly as they can, and hope someone at the White House is listening.

"These tariffs are hitting the wrong target. When it comes to unfairly traded steel and aluminum, Mexico, Canada, and Europe are not the problem — China is," added House Ways and Means Chairman Kevin Brady (R-Texas). "I call on the administration to continue the exemptions and negotiations with these important national security partners."

*Rachael Bade and Rebecca Morin contributed to this report.*

*To view online click here.*

Back

Was this Pro content helpful? Tell us what you think in one click.


Yes, very


Somewhat


Neutral


Not really


Not at all

**You received this POLITICO Pro content because your customized settings include: Morning Energy. To change your alert settings, please go to https://subscriber.politicopro.com/settings**

POLITICOPRO

**This email was sent to brian.mccormack@hq.doe.gov by: POLITICO, LLC 1000 Wilson Blvd. Arliugton, VA, 22209, USA**



AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-M-000111

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 5:01 AM
**To:** Hynes, Shaylyn
**Subject:** RE: Talkers...

yes

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 7:57 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Talkers...

Good here.

Do you want me to circulate to the working group?

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 6:50 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Talkers...

Look at this version

(b) (5)

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 6:51 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Talkers...

Chomp away.

https://www.bloomberg.com/news/articles/2018-06-01/trump-said-to-grant-lifeline-to-money-losing-coal-power-plants-jhv94ghl?utm_source=google&utm_medium=bd&cmpId=google



AMERICAN OVERSIGHT

(b) (5)



AMERICAN OVERSIGHT

Document 60

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 5:50 AM
**To:** Turenne, William;Liben, Paul
**Subject:** FYI

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 6:24 AM
**To:** Herz, James P. EOP/OMB
**Subject:** RE: Energy Star

I can do 9:45.

---

**From:** Herz, James P. EOP/OMB [mailto:James.P.Herz@omb.eop.gov]
**Sent:** Friday, June 01, 2018 8:49 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Energy Star

Does 9:45am or anytime 2-4:30pm work today for a quick 5 min call?

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Thursday, May 31, 2018 5:21 PM
**To:** Herz, James P. EOP/OMB <James.P.Herz@omb.eop.gov>
**Subject:** RE: Energy Star

I just left you a vm. I'm at (b) (6)

---

**From:** Herz, James P. EOP/OMB [mailto:James.P.Herz@omb.eop.gov]
**Sent:** Thursday, May 31, 2018 4:08 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Energy Star

You got time for a quick call on Energy Star? My direct is 202-395-1237.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 6:25 AM
**To:** Turenne, William;Hynes, Shaylyn;Fibbe, George;Cunningham, Sean;Menezes, Mark;Colgary, James;Haus, Bob;Wilmot, Dan;Walker, Bruce;Lotto, Adrienne;Varnasidis, Sophia;Atkins, Elise;Burnison, Melissa;Bolton, Dwayne S.;Little, Douglas
**Subject:** RE: *Flash* Talking Points for review

Adding CI

The points are fine by me.

---

**From:** Turenne, William
**Sent:** Friday, June 01, 2018 8:54 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Subject:** RE: *Flash* Talking Points for review

+ Elise Atkins for SA

---

**From:** Turenne, William <William.Turenne@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:40 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: *Flash* Talking Points for review

(b) (5)

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 8:30 AM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienue.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** *Flash* Talking Points for review

*Priveleged and Confidential*



AMERICAN OVERSIGHT

(b) (5)

---

**From:** Fibbe, George <George.Fibbe@hq.doe.gov>
**Date:** Tuesday, May 29, 2018, 2:34 PM
**To:** Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

Privileged and Confidential

(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

-----Original Message-----
From: Cunningham, Sean
Sent: Tuesday, May 29, 2018 3:15 PM
To: Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>;



AMERICAN OVERSIGHT

McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: RE: *Privileged & Confidential* PROPOSED STATEMENT FOR WH

(b) (5)

, thanks.

-----Original Message-----
From: Hynes, Shaylyn
Sent: Tuesday, May 29, 2018 2:57 PM
To: Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: *Privileged & Confidential* PROPOSED STATEMENT FOR WH
Importance: High

*Privileged and Confidential* Pre-Decisional* Not for Distribution*

All,

(b) (5)

(b) (5)

Please review and track any chances ASAP.

Thank you,
Shaylyn



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Special Projects Update |
| **Location:** | Brian McCormack's Office |
| **Start:** | Fri 6/1/2018 7:30 AM |
| **End:** | Fri 6/1/2018 8:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Joshua Jones (joshua.jones@hq.doe.gov) |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 7:36 AM
**To:** Sanford, Jessica L.
**Subject:** RE: Meetings with S3 Today

The 2 pm just got canceled. The noon will be down here in the Manhattan Project conf room.

-----Original Message-----
From: Sanford, Jessica L.
Sent: Friday, June 01, 2018 10:32 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: Meetings with S3 Today

Hi Sir,
S3 mentioned attending two meetings with you this afternoon, I believe at noon and 2PM respectively. I just wanted to check to see if I needed to reserve a conference room and wanted to make sure we have the correct time? Happy to be of assistance however I can.

Thanks,
Jess



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 7:36 AM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

Understood. If you want to talk later or over the weekend let me know. This issue got some news as well....

https://www.bloomberg.com/news/articles/2018-06-01/trump-said-to-grant-lifeline-to-money-losing-coal-power-plants-jhv94ghl

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Friday, June 01, 2018 10:27 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: Secretary Perry/ LLA

Can't do today. Crazy because of these idiotic tariffs.

Let's shoot for next week.

Sent from my BlackBerry 10 smartphone.

---

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 1:00 PM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

We did not. Do you have preferred times tomorrow or Friday? I should be able to make most anything work.

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Wednesday, May 30, 2018 11:29 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Secretary Perry/ LLA

Brian, did we set up a time for me to come over to discuss the coal/nuclear issue? Looking forward to getting together with your team.

Steve

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org



AMERICAN OVERSIGHT

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Thursday, May 24, 2018 10:27 AM
**To:** Moore, Steve <Steve.Moore@heritage.org>
**Subject:** RE: Secretary Perry/ LLA

Sir,

Checking to see what your availability is to connect on this issue. Thank you.

Brian

---

**From:** McCormack, Brian
**Sent:** Monday, May 21, 2018 10:04 AM
**To:** 'steve.moore@heritage.org' <steve.moore@heritage.org>
**Subject:** Secretary Perry/ LLA

Steve,

It was good to run into you again at the Laffer meeting last week. As promised, attached is a copy of Secretary Perry's remarks (these are not for distribution). Also, here is the link to one story in Forbes and pasted below is another from E&E on the topic. Please let me know any available times on your schedule this week so we can try and reconnect in person.

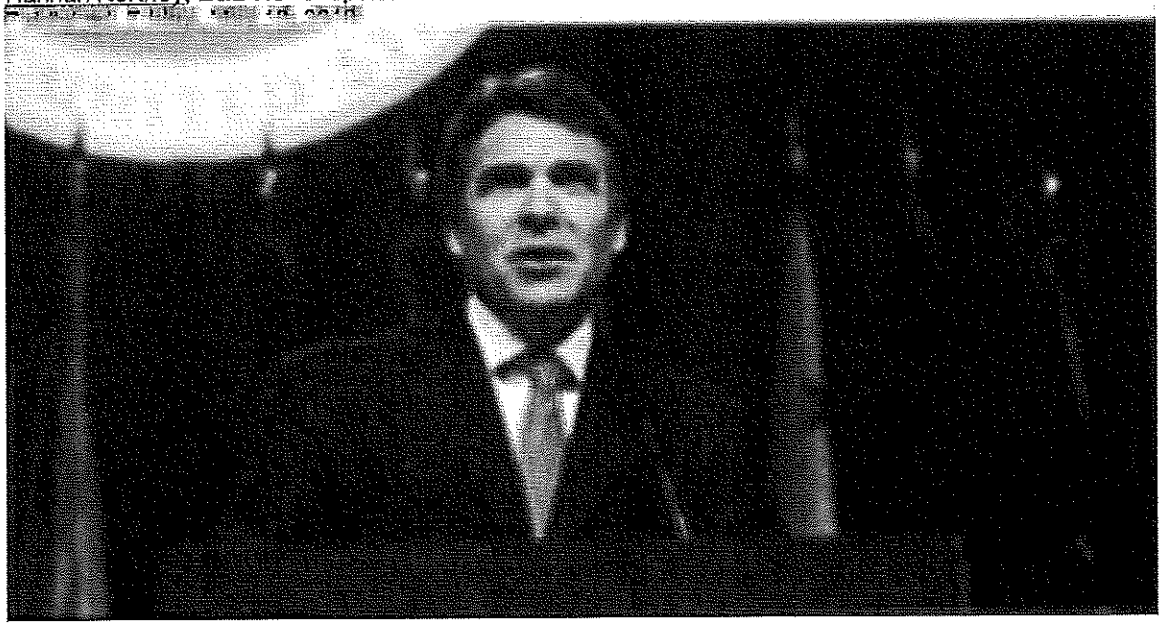
Best,
Brian

(b) (6) office
(b) (6) mobile

## E&E: WHITE HOUSE

## Top aides not considering rescue for coal, nuclear — source

Hannah Northey, E&E News reporter





AMERICAN OVERSIGHT

Energy Secretary Rick Perry is considering policies to save coal and nuclear plants. Staff Sgt. Jim Greenhill/U.S. Army/Flickr

The National Security Council is leading a new search for policies to safeguard the U.S. electric grid — talks that won't include efforts to subsidize specific coal and nuclear plants, said a senior Energy Department official.

The NSC Deputies Committee is helming discussions about what steps should be taken to ensure the U.S. energy system — transmission, pipelines, power plants and more — remains resilient in the face of cyberattacks, storms and other threats.

What's not included: subsidies for any particular type of generation, including ailing nuclear and coal plants that have been asking the agency for financial lifelines. The administration is leaving that option to Congress, said the official, who asked to remain anonymous.

Discussions unfolding on the panel — currently being led by Mira Ricardel, a deputy to White House national security adviser John Bolton — are focused on defense and resilience, not economics, said the official.

The NSC is President Trump's principal forum for considering national security and foreign policy matters with his senior national security advisers and Cabinet officials. DOE is a permanent member of the council.

Advertisement

Ricardel, who served as a former defense aide to Trump's campaign and worked in the Pentagon under the George W. Bush administration, is leading the committee, which also includes DOE Deputy Secretary Dan Brouillette, Deputy Secretary of State John Sullivan and Deputy Attorney General Rod Rosenstein, among others.

The official said the committee could formulate recommendations soon.

Current policy levers on the table — as part of a broader discussion within the standard White House policy process focused on critical infrastructure writ large — include the Defense Production Act of 1950, the Fixing America's Surface Transportation (FAST) Act of 2015 and the Energy Policy Act, said the official.

Even though such policies are being considered, the official reiterated the panel is not suggesting there is any economic emergency and said no singular company's situation would be factored into any recommendations that may be produced.

When asked what recommendations discussions could generate, the official said it's not yet clear, nor is there a definitive timeline.

The official confirmed DOE is in the process of identifying defense-critical electric infrastructure under the FAST Act — a move Bruce Walker, DOE's assistant secretary for electricity delivery and energy reliability, shared with grid overseers last week (*Energywire*, May 11).

Walker said that law directed DOE to "identify what the defense-critical electric infrastructure was in the United States."

When asked whether that designation could lead to financial support, the DOE official said simply pointing out that a facility is important to the grid doesn't equate to a subsidy.

The official's comments offer a sharp contrast to a steady stream of reports of the administration considering the statutes to throw certain facilities a financial lifeline.

Separate from the NSC discussions is a direct request from an Ohio-based utility for DOE to directly intervene using federal statute.

In late March, FirstEnergy Corp.'s generating subsidiary made a formal request for the department to use its authority under Section 202(c) of the Federal Power Act to declare a grid emergency and direct subsidies to unprofitable coal and nuclear plants.

DOE is still reviewing that application.

A number of grid experts have warned that protecting the power grid by subsidizing coal and nuclear misses other important threats and ignores more affordable and effective defenses (*Energywire*, May 3).

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Phone Call: Doug Davenport, (b) (6) |
| **Location:** | Phone Call |
| **Start:** | Fri 6/1/2018 8:00 AM |
| **End:** | Fri 6/1/2018 8:15 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Doug Davenport |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 10:37 AM
**To:** Almstead, Deidre;Wilmot, Dan;Varnasidis, Sophia;Winberg, Steven;Maddox, Mark
**Cc:** Gerdes, Stan
**Subject:** RE: Urgent Call Request - Secretary Perry

He already has a call scheduled with S2 at 3 pm. Please hold.

---

**From:** Almstead, Deidre
**Sent:** Friday, June 01, 2018 1:33 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Winberg, Steven <Steven.Winberg@hq.doe.gov>; Maddox, Mark <MRMaddox@hq.doe.gov>
**Cc:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: Urgent Call Request - Secretary Perry
**Importance:** High

Jack Gerard, President & CEO of API asking to speak to S1 today on "the recent announcement on coal and nuclear power plants" is this something that needs to be handled by S1?

---

**From:** Laine Evans [mailto:levans@guidepost-strategy.com]
**Sent:** Friday, June 01, 2018 1:30 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Cc:** Larissa Martin <lmartin@guidepost-strategy.com>
**Subject:** Urgent Call Request - Secretary Perry
**Importance:** High

Good Afternoon –

I sincerely apologize for the last minute request here, but is there any way Secretary Perry could hop on a quick phone call with Jack Gerard, President & CEO of API? This is in regards to the recent announcement on coal and nuclear power plants.

He is open all afternoon, with the exception of 2:45pm.

Thanks very much, we appreciate your help.

Best,
Laine

**Laine Evans**
GuidePostStrategies
Cell: (b) (6)
Email: levans@GuidePost-Strategy.com



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Hold for Steve Moore (confirm in the morning this time works) |
| **Location:** | DOE 1000 Independence Ave SW (check-in details will be provided) |
| **Start:** | Fri 6/1/2018 11:00 AM |
| **End:** | Fri 6/1/2018 12:00 PM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Moore, Steve |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Friday, June 01, 2018 12:25 PM
**To:** (b) (6)
**Subject:** FYI

*"The United States of America has the most technologically advanced and developed infrastructure in the world with access to a reliable, dependable and diversified electric grid.*

*President Trump believes in total energy independence and dominance, and that keeping America's energy grid and infrastructure strong and secure protects our national security, public safety and economy from intentional attacks and natural disasters.*

*Unfortunately, impending retirements of fuel-secure power facilities are leading to a rapid depletion of a critical part of our nation's energy mix, and impacting the resilience of our power grid.*

*President Trump has directed Secretary of Energy Rick Perry to prepare immediate steps to stop the loss of these resources, and looks forward to his recommendations."* -- Sarah Sanders, White House Press Secretary



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Saturday, June 02, 2018 2:59 AM
**To:** Hynes, Shaylyn;Atkins, Elise;Turenne, William;Brouillette, Dan;Menezes, Mark
**Cc:** Wilmot, Dan;Varnasidis, Sophia;Walker, Bruce;Lotto, Adrienne;Fibbe, George;Cunningham, Sean;Haus, Bob;Colgary, James
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

Privileged and Confidential

(b) (5)

http://www.api.org/news-policy-and-issues/news/2018/06/01/oil-wind-solar-condemn-action-to-subsidize-failing-coal-nuclear-plants

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 2:20 PM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

*privileged and confidential * Statement from PJM:

*FOR IMMEDIATE RELEASE*
Contact: PJM News, at **PJMNews@pjm.com** or toll free at 866-PJM-NEWS (866-756-6397)
**PJM Statement on Potential Department of Energy Market Intervention**
(Valley Forge, Pa. – June 1, 2018)
PJM has not received any official document from the Department of Energy.
Our analysis of the recently announced planned deactivations of certain nuclear plants has determined that there is no immediate threat to system reliability. Markets have helped to establish a reliable grid with historically low prices. Any federal intervention in the market to order customers to buy electricity from specific power plants would be damaging to the markets and therefore costly to consumers.
There is no need for any such drastic action. PJM just released the results of its capacity auction, which secured reliable supplies through 2021/2022. The auction results saw an increase in the amount of coal resources that cleared the market, along with a diverse mix of natural gas generation, nuclear generation, renewable resources, demand response and energy efficiency.
The PJM electrical grid is more reliable than ever, with 23 percent reserve margins and billions of dollars of new investment. All of this is occurring while emissions are decreasing and wholesale prices are at historic lows for the 65 million consumers we serve. From 2008 to 2017, wholesale prices in PJM fell by more than 40 percent. Competition has required generators to operate more efficiently while also attracting new, more efficient technology, resulting in more than $1.4 billion in annual savings.

We have acknowledged the concerns raised by officials and regulators about the long-term resilience of the grid and we are embarking on a fuel security initiative that we announced just a few weeks ago. Our goal with that initiative is to



AMERICAN OVERSIGHT

ensure that the already reliable electric grid will continue to remain both reliable and resilient for years into the future without the need for government intervention in the marketplace.

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 1:02 PM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*
**Importance:** High

*FYI the following has gone out from Sarah sanders. I am responding to reporters with this.*

*"The United States of America has the most technologically advanced and developed infrastructure in the world with access to a reliable, dependable and diversified electric grid.*

*President Trump believes in total energy independence and dominance, and that keeping America's energy grid and infrastructure strong and secure protects our national security, public safety and economy from intentional attacks and natural disasters.*

*Unfortunately, impending retirements of fuel-secure power facilities are leading to a rapid depletion of a critical part of our nation's energy mix, and impacting the resilience of our power grid.*

*President Trump has directed Secretary of Energy Rick Perry to prepare immediate steps to stop the loss of these resources, and looks forward to his recommendations."* -- Sarah Sanders, White House Press Secretary

Best,

---

**From:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 11:25 AM
**To:** Turenne, William <William.Turenne@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

(b) (5)



AMERICAN OVERSIGHT

**From:** Turenne, William
**Sent:** Friday, June 01, 2018 12:20 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>; Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

Copy that. + Elise again.

Shaylyn, can you please let the group know once it has been made public?

Thanks.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 12:07 PM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>, Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>, Walker, Bruce <Bruce.Walker@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Fibbe, George <George.Fibbe@hq.doe.gov>, Cunningham, Sean <Sean.Cunningham@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

(b) (5)

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 11:34 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

Update: the memo is now posted online : https://www.scribd.com/document/380740746/DOE-Coal-Nuke-Subsidy-Plan-1

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 11:03 AM



AMERICAN OVERSIGHT

**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

**All-please see below from Marc. This is yet another version and is final. Thanks!**

Sorry, sent the wrong version.this is the final draft. My apologies.

Revised 6/1:

The United States of America has the most technologically advanced and developed infrastructure in the world with access to a reliable, dependable and diversified electric grid.

President Trump believes in total energy independence and dominance, and that keeping America's energy grid and infrastructure strong and secure protects our national security, public safety and economy from intentional attacks and natural disasters.

Unfortunately, impending retirements of fuel-secure power facilities are leading to a rapid depletion of a critical part of our nation's energy mix, weakening the resilience of our power grid.

President Trump has directed Secretary of Energy Rick Perry to prepare immediate steps to stop the loss of these resources.

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 11:01 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce <Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>; Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** RE: *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

+ Jim!

---

**From:** Hynes, Shaylyn
**Sent:** Friday, June 01, 2018 10:55 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
**Cc:** Brian McCormack (Brian.Mccormack@hq.doe.gov) <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; Walker, Bruce



AMERICAN OVERSIGHT

<Bruce.Walker@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>; Cunningham, Sean <Sean.Cunningham@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Haus, Bob <Bob.Haus@hq.doe.gov>
**Subject:** *FLASH-FINAL STATEMENT TO GO OUT AT NOON*

***Priveleged and Confidential***

(b) (5) -(b) (5)

(b) (5)

Thanks!

---

**From:** Raimondi, Marc [mailto:(b) (6)
**Sent:** Friday, June 01, 2018 10:49 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** RE: Please call me or send me your phone number

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Sent:** Friday, June 1, 2018 10:44 AM
**To:** Raimondi, Marc <Marc.A.Raimondi@nsc.eop.gov>
**Subject:** RE: Please call me or send me your phone number

Just tried you. Im at (b) (6)

---

**From:** Raimondi, Marc [mailto:(b) (6)
**Sent:** Friday, June 01, 2018 10:42 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Please call me or send me your phone number

Thanks,

Marc Raimondi
Director for Press
National Security Council
Direct: 202-456-6192
Mobile: (b) (6) (no text)
(Department of Justice work contact after June 1*: marc.raimondi@usdoj.gov, 1-202-353-5418)

*Projected



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

EXT-(UCS)-18-2615-M-000133

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Sunday, June 03, 2018 9:19 AM
**To:** Wallwork, Luke;Haddad, Zead;Wilmot, Dan;Turenne, William;Habansky, Sarah
**Cc:** Naughton, Janet
**Subject:** RE: S1 DOE speech for Monday -- question

I'll be looking at later this afternoon

---

**From:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 10:51 AM
**To:** Haddad, Zead <Zead.Haddad@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Speech still in process?

---

**From:** Haddad, Zead
**Sent:** Saturday, June 02, 2018 10:54 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** FW: S1 DOE speech for Monday -- question

FYI below.

---

**From:** Everett, Max <Max.Everett@hq.doe.gov>
**Date:** Saturday, Jun 02, 2018, 10:50 AM
**To:** Haddad, Zead <Zead.Haddad@hq.doe.gov>, Liben, Paul <Paul.Liben@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Will do - waiting on word if Congressman McCaul will attend.

Max

---

**From:** Haddad, Zead <Zead.Haddad@hq.doe.gov>
**Date:** Saturday, Jun 02, 2018, 9:47 AM
**To:** Liben, Paul <Paul.Liben@hq.doe.gov>, Everett, Max <Max.Everett@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>



AMERICAN OVERSIGHT

**Cc:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Good afternoon,

Please keep us posted on whether additional members or VIPs will be in the audience during the Secretary's remarks.

Right now, only Chairman Hurd and Mayor are mentioned in the speech and memo.

Thank you.

---

**From:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 12:01 PM
**To:** Everett, Max <Max.Everett@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>
**Subject:** RE: S1 DOE speech for Monday -- question

Thanks Max.

---

**From:** Everett, Max
**Sent:** Friday, June 01, 2018 11:43 AM
**To:** Liben, Paul <Paul.Liben@hq.doe.gov>; Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Subject:** RE: S1 DOE speech for Monday -- question

I think if we stay with elected officials we'll be safe. The Mayor of Austin will be there so we should add him. Only other is I believe we are waiting to hear if Congressman McCaul will attend. Will let you know as soon as we hear about that.

Max

---

**From:** Liben, Paul <Paul.Liben@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 10:39 AM
**To:** Everett, Max <Max.Everett@hq.doe.gov>, Crouch, Katherine <Katherine.Crouch@Hq.Doe.Gov>
**Subject:** S1 DOE speech for Monday -- question

Max and Kathy,

In the opening, we cite Chairman Hurd and thank him for joining us.

Is there any other attendee we need to recognize?

Zead mentioned the mayor of Austin.

We're wrapping this up today, so if you could let us know ASAP, that would be great.

Thanks for all your assistance.

Paul



AMERICAN OVERSIGHT

PS -- Once we start citing others, we need to be sure we don't miss anyone, so if the list is too long, we need to consider that as well.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Sunday, June 03, 2018 2:49 PM
**To:** Hynes, Shaylyn;Wallwork, Luke
**Subject:** RE: Remarks

Good. Circulate to menezes walker max Wilmot Colgary CI Cunningham fibbe Comms Adrienne Sophia.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 5:44 PM
**To:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Remarks

Use this version. One more tweak. Thanks!

---

**From:** Wallwork, Luke
**Sent:** Sunday, June 03, 2018 5:43 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Remarks

I'm good.

Brian let us know when final

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Sunday, Jun 03, 2018, 4:36 PM
**To:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Subject:** Remarks

Per our convo, please review these, make any changes and them send them back to Brian and I so he can take a final look.

Thanks!



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:24 AM
**To:** emilio@emilpenainterestsinc.com
**Subject:** touching base

Emil-

I meant to call you back over the weekend. Sorry.

What's a good time to talk today?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:26 AM
**To:** Trae Stephens
**Cc:** Matt Steckman;Palmer Luckey;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Gerdes, Stan
**Subject:** RE: Anduril Update

Trae- you're not. My challenge is there are a number of items up in the air that may have us not in DC that we've been trying to nail down. Hope to have addressed today.

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Friday, June 01, 2018 2:53 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

At the risk of becoming super annoying, just thought I would reach back out! Our plans for a June trip are starting to move forward and I'd like to prioritize this meeting if we can.

Thanks!
Trae'

On Thu, May 24, 2018 at 1:48 PM, Trae Stephens <trae@anduril.com> wrote:

> Awesome - thanks!
>
> Trae'
>
> On Thu, May 24, 2018 at 1:46 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:
>
> > I have the Scheduling Office looking at that. Back in touch soon.
> >
> > **From:** Trae Stephens [mailto:trae@anduril.com]
> > **Sent:** Thursday, May 24, 2018 4:35 PM
> >
> > **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> > **Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
> > **Subject:** Re: Anduril Update
> >
> > No worries!



AMERICAN OVERSIGHT

Ideally, this would be either the week of the 18th or the 25th. We haven't locked in dates yet. What would work best for the Secretary? You guys can get first dibs! :)

Trae'

On Thu, May 24, 2018 at 1:28 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

Trae- Thanks for the note and sorry for not responding earlier. What days will you bi in DC?

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:23 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

Brian: Thought I'd ping again here to resurface. We would love to chat!

Thanks,

Trae'

On Sat, May 12, 2018 at 10:58 AM, Trae Stephens <trae@anduril.com> wrote:

Brian: I hope this finds you doing well! (b) (6) suggested that I reach out to you with regards to the project (b) (4) (copied) and I have been working on over the past year. We'd love to come in and chat with you and the Secretary about critical infrastructure protection using the technology we are currently deploying (b) (4)

Here's a two-minute video summarizing the work.

URL: (b) (6), (b) (4)

Password: (b) (6), (b) (4)



AMERICAN OVERSIGHT

We will likely be back in DC in early/mid June and would be happy to come by and even do a live demonstration (connecting back to our (b) (4) ).

Let me know what you think!

Thanks,

Trae'



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:46 AM
**To:** Wallwork, Luke
**Subject:** FW: China Update
**Attachments:** table_revisions sunday.pdf

fyi

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:45 AM
**To:** (b) (6)
**Subject:** FW: China Update

fyi

---

**From:** Winberg, Steven
**Sent:** Sunday, June 03, 2018 5:33 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Cc:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Subject:** China Update

***Brian, Sec. Ross asked me to brief S1 prior to Ross' meeting with the President (Monday, 4 PM). Happy to do so at S1's convenience.***

All,
Negotiations on agriculture and energy concluded this morning with discussions led by Secretary Ross and Vice Premier Liu He.

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

A few additional items to flag:

- **Next Steps:**
  - On Monday 4pm Secretary Ross will be briefing the President on the outcomes of the trade meeting.
  - Based on that discussion, on Tuesday I will next steps with Commerce and Treasury.

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:05 AM
**To:** Fibbe, George;Atkins, Elise;Colgary, James
**Cc:** Brown, Michael
**Subject:** RE: Privileged and Confidential

Copying in Jim. (b) (5)

---

**From:** Fibbe, George
**Sent:** Monday, June 04, 2018 8:03 AM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Brown, Michael <Michael.Brown@hq.doe.gov>
**Subject:** RE: Privileged and Confidential

Privileged and Confidential
(b) (5)

George Fibbe
Deputy General Counsel
Litigation, Regulation & Enforcement
Office: 202.287.6240
Cell: (b) (6)

**From:** Atkins, Elise
**Sent:** Saturday, June 02, 2018 6:37 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Fibbe, George <George.Fibbe@hq.doe.gov>
**Subject:** Privileged and Confidential

Brian, FYI.
(b) (5)

---

**From:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 9:05 PM
**To:** Fibbe, George <George.Fibbe@hq.doe.gov>, Brown, Michael <Michael.Brown@hq.doe.gov>
**Subject:** FW: Jack/Brouillette - Intelligence Briefing - Power Grid Resiliency

Per our discussion, I think this forward for review is confidential and attorney/client privileged, and I am hoping for your guidance on ensuring proper characterization of the communication from Chris to me.
Thank you.



AMERICAN OVERSIGHT

**From:** Chris Kelley <KelleyC@api.org>
**Date:** Friday, Jun 01, 2018, 5:33 PM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Cc:** Susan Tackish <tackishs@api.org>, Khary Cauthen <cauthenk@api.org>, Marty Durbin <durbinm@api.org>
**Subject:** Jack/Brouillette - Intelligence Briefing - Power Grid Resiliency

Elise,

Thank you very much for talking a moment ago and I appreciate your help in connecting Susan and I with Allie Burns and Jim Colgary in Deputy Secretary Dan Brouillette's office. Copied on this email is Susan Tackish who is best able to coordinate API CEO Jack Gerard's schedule; Khary Cauthen, our Sr. Director of Federal Relations; and Marty Durbin, our Executive Vice President and Chief Strategy Officer.

We are very grateful for Mr. Brouillette's time on the phone with Jack this afternoon as well as for his offer to set up an opportunity for Jack, API staff, and API member company representatives who are properly cleared, to be read in and receive a briefing from the appropriate intelligence agencies about the specific nature of the physical and cyber related threats to the power grid, specifically concerning grid resiliency, and their assessments.

Mr. Brouillette was interested in arranging this briefing sooner than later and specifically mentioned that "in the next few days would be ideal" which I understood to be early to mid-next week. This is certainly workable from our end for our participating staff as well identifying appropriate member company representatives.

I'll look forward to speaking more with Allie or Mr. Colgary to work out the details and logistics of this briefing and am available by email or my cell at (b) (6) :o help facilitate. We very much appreciate this opportunity to more fully understand DOE's perspective and policy goals in this area.

Please let me know if I can be of any assistance to you or any other matter.

Chris

**Chris Kelley**
**Director – Federal Relations**

Direct: 202-682-8406 | KelleyC@api.org | API | 1220 L Street NW | Washington, DC 20005

energy API
AMERICAN PETROLEUM INSTITUTE



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:23 AM
**To:** (b) (6)
**Cc:** Wallwork, Luke;Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** RE: China Update

(b) (5)

- Wilbur is meeting with POTUS at 4 today. (b) (5)

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:45 AM
**To:** (b) (6)
**Subject:** FW: China Update

fyi

---

**From:** Winberg, Steven
**Sent:** Sunday, June 03, 2018 5:33 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Cc:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Subject:** China Update

***Brian, Sec. Ross asked me to brief S1 prior to Ross' meeting with the President (Monday, 4 PM). Happy to do so at S1's convenience.***

All,
Negotiations on agriculture and energy concluded this morning with discussions led by Secretary Ross and Vice Premier Liu He.

(b) (5)



AMERICAN OVERSIGHT

(b) (5)

(b) (5)

A few additional items to flag:

- **Next Steps:**
  - On Monday 4pm Secretary Ross will be briefing the President on the outcomes of the trade meeting.
  - Based on that discussion, on Tuesday I will next steps with Commerce and Treasury.

(b) (5)



AMERICAN OVERSIGHT

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:24 AM
**To:** Winberg, Steven;Brouillette, Dan;Menezes, Mark;Garrish, Theodore;Storch, Thomas
**Cc:** Maddox, Mark
**Subject:** RE: China Update

Thanks, Steve. (b) (5)

---

**From:** Winberg, Steven
**Sent:** Sunday, June 03, 2018 5:33 AM
**To:** Brouillette, Dan <Dan.Brouillette@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Garrish, Theodore <Theodore.Garrish@hq.doe.gov>; Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Cc:** Maddox, Mark <MRMaddox@hq.doe.gov>
**Subject:** China Update

***Brian, Sec. Ross asked me to brief S1 prior to Ross' meeting with the President (Monday, 4 PM). Happy to do so at S1's convenience.***

All,
Negotiations on agriculture and energy concluded this morning with discussions led by Secretary Ross and Vice Premier Liu He.

(b) (5)

(b) (5)

A few additional items to flag:

- **Next Steps:**



AMERICAN OVERSIGHT

- On Monday 4pm Secretary Ross will be briefing the President on the outcomes of the trade meeting.
- Based on that discussion, on Tuesday I will next steps with Commerce and Treasury.

(b) (5)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 5:29 AM
**To:** Almstead, Deidre;Gerdes, Stan
**Subject:** RE: Anduril Update

Isn't he in partially week of 18th?

---

**From:** Almstead, Deidre
**Sent:** Monday, June 04, 2018 8:07 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: Anduril Update

Resending- let me know if you want us to send directly to these folks

---

**From:** Almstead, Deidre
**Sent:** Wednesday, May 30, 2018 2:16 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: Anduril Update

The week of the 18th wouldn't work because of the G20 in Argentina/potential White House directed travel

The week of the 25th is World Gas Week, so we are back to back that whole week with the Secretary's keynote at the conference and side events/bilateral meetings with the foreign ministers in town for the conference

---

**From:** McCormack, Brian
**Sent:** Tuesday, May 29, 2018 6:49 PM
**To:** Almstead, Deidre <Deidre.Almstead@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: Anduril Update

Need to discuss tomorrow

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:49 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

Awesome - thanks!

Trae'

On Thu, May 24, 2018 at 1:46 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> I have the Scheduling Office looking at that. Back in touch soon.



AMERICAN OVERSIGHT

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:35 PM

**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

No worries!

Ideally, this would be either the week of the 18th or the 25th. We haven't locked in dates yet. What would work best for the Secretary? You guys can get first dibs! :)

Trae'

On Thu, May 24, 2018 at 1:28 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Trae- Thanks for the note and sorry for not responding earlier. What days will you bl in DC?
>
> **From:** Trae Stephens [mailto:trae@anduril.com]
> **Sent:** Thursday, May 24, 2018 4:23 PM
> **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> **Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
> **Subject:** Re: Anduril Update
>
> Brian: Thought I'd ping again here to resurface. We would love to chat!
>
> Thanks,
>
> Trae'
>
> On Sat, May 12, 2018 at 10:58 AM, Trae Stephens <trae@anduril.com> wrote:
>
> > Brian: I hope this finds you doing well! (b) (6) suggested that I reach out to you with regards to the project (b) (4) (copied) and I have been working on over the past year. We'd love to come in and chat



AMERICAN OVERSIGHT

with you and the Secretary about critical infrastructure protection using the technology we are currently deploying(b) (4)

Here's a two-minute video summarizing the work.

URL: (b) (6), (b) (4)

Password: (b) (6), (b) (4)

We will likely be back in DC in early/mid June and would be happy to come by and even do a live demonstration (connecting back to our (b) (4) ).

Let me know what you think!

Thanks,

Trae'



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Dan Simmons and Alex Fitzsimmons |
| **Location:** | Brian McCormack's Office |
| **Start:** | Mon 6/4/2018 6:30 AM |
| **End:** | Mon 6/4/2018 7:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Simmons, Daniel; Alex Fitzsimmons (alexander.fitzsimmons@ee.doe.gov) |

Thank you!

**From:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 10:26 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Subject:** RE: AHAM CEO Letter to the President

Awesome, I will talk to him about it and put it on the calendar.

**From:** Fitzsimmons, Alexander
**Sent:** Thursday, May 31, 2018 10:20 AM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** RE: AHAM CEO Letter to the President

Brian hasn't. Daniel asked me to reach out.

**From:** Assafe, Yordanos
**Sent:** Thursday, May 31, 2018 10:19 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Subject:** RE: AHAM CEO Letter to the President

Sure thing, has Brian given you the okay or should I ask him first?

Thank you!

**From:** Fitzsimmons, Alexander
**Sent:** Thursday, May 31, 2018 10:17 AM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Cc:** Simmons, Daniel <Daniel.Simmons@ee.doe.gov>; Yuzon, Andrea (CONTR) <Andrea.Yuzon@EE.DOE.Gov>
**Subject:** FW: AHAM CEO Letter to the President



AMERICAN OVERSIGHT

Yordanos,

Please see below. Can you set up 15 minutes for Brian and Daniel to meet next week about this? CCing Andrea.

-Alex

**From:** Simmons, Daniel
**Sent:** Thursday, May 31, 2018 10:07 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Subject:** FW: AHAM CEO Letter to the President

**From:** Messner, Kevin <KMessner@AHAM.org>
**Date:** Thursday, May 31, 2018, 5:58 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Simmons, Daniel <Daniel.Simmons@ee.doe.gov>
**Subject:** AHAM CEO Letter to the President

So you are aware, I wanted to send you the letter that our CEOs sent to the President regarding ENERGY STAR moving back to DOE for home appliances. As you know, for us, it is a culmination of an effort that started as far back as 2016. Our plan is that we will be requesting meetings with our CEOs and the White House and also with Administrator Pruitt and Secretary Perry on June 20/21. I am hopefully, Secretary would be available on those days and will send a request in to his scheduler, but wanted to give you both a heads up.

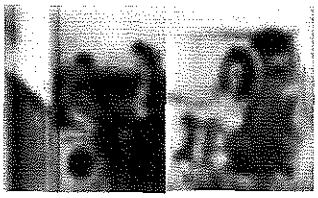
For home appliances, the continued success of the ENERGY STAR program is an essential part of our industry's business. That is why you are seeing so much energy behind this effort from us. At our recent Board meeting, our members discussed how important the future success of the ENERGY STAR program was to the appliance industry's business, and after a year and a half of inaction, they decided to ramp it all the way up to our CEOs and the White House. Our view is that the current bifurcated structure of the Appliance Standard Program being at DOE and the ENERGY STAR program being at EPA creates inefficiencies for our member companies and for the government. Appliance manufacturers financial expenditures are redundantly made to DOE and EPA activities, such as responding to multiple agency analysis, reporting and disclosure, consultants, certification/verification, etc.

Thank you for all your time on this. I remain hopeful we can cross the finish line on this. Thanks again.

**Kevin Messner**
**Senior Vice President, Policy & Government Relations**
Association of Home Appliance Manufacturers
1512 Willow Lane, Davis, CA 95616
1111 19th Street NW, Suite 402, Washington, DC 20036
*t* 202.872.5955 ext. 353 *m* (b) (6) *f* 202.872.9354 *e* kmessner@aham.org
Connect with us:



AMERICAN OVERSIGHT



Every home.
Everywhere.
Every day.

The information contained in this electronic message and any attachments to this message are intended for the exclusive use of the addressee(s). If you are not the intended recipient, or the person responsible for delivering the e-mail to the intended recipient, be advised you have received this message in error and that any use, dissemination, forwarding, printing, or copying is strictly prohibited. Please notify The Association of Home Appliance Manufacturers at (202) 872-5955 or unsubscribe@aham.org <mailto:unsubscribe@aham.org>, and destroy all copies of this message and any attachments.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:55 AM
**To:** Menezes, Mark
**Cc:** Varnasidis, Sophia
**Subject:** IHS

Just checking if they gave you a timeline yet. Thanks.



AMERICAN OVERSIGHT

Document 82

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:58 AM
**To:** Habansky, Sarah
**Subject:** please see me with the outreach list.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:18 AM
**To:** Fitzsimmons, Alexander
**Subject:** call me re energy star



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:25 AM
**To:** Storch, Thomas
**Subject:** FW: Emil Argentina June G20

---

**From:** Emil Pena [mailto:emilio@emilpenainterestsinc.com]
**Sent:** Tuesday, May 01, 2018 2:55 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Emil Argentina June G20

Hi Brian, one, I spoke to Secretary Perry last week at a dinner and mentioned the upcoming G20 meeting in Bariloche, Argentina in June (13th-15th) for the Energy Meeting. Barbara Humpton, who the Secretary knows and now the new President and CEO of Siemens, was with me and we inquired about the business contingent accompanying him for this meeting. He steered me to you to ask how all that works.

Two, I also mentioned that I'm very familiar with the Vaca Muerta (in the state of Neuquén) production zone, a four hour drive from Bariloche or ½ hour flight, and offered a tour. Mr. Perry was curious since he has never been to Argentina, and having him meet the in-country companies that produce and service the wells would be very cool, either before or after G20. He will receive an invitation from Neuquén offering the tour and transportation (flight). Let me know how to best align this. Thanks, Emil

Emil Peña
713-650-8004





AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: David Solan |
| **Location:** | Brian McCormack's Office |
| **Start:** | Mon 6/4/2018 7:30 AM |
| **End:** | Mon 6/4/2018 8:00 AM |
| **Show Time As:** | Tentative |
| **Recurrence:** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Solan, David |

No. (b) (5)

**From:** Assafe, Yordanos [mailto:Yordanos.Assafe@hq.doe.gov]
**Sent:** Thursday, May 31, 2018 3:41 PM
**To:** Solan, David <David.Solan@science.doe.gov>
**Subject:** RE: Ethane meeting with Brian

Has he requested this meeting?

**From:** Solan, David [mailto:David.Solan@science.doe.gov]
**Sent:** Thursday, May 31, 2018 3:41 PM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** RE: Ethane meeting with Brian

Hi Yordanos – I'd like to get on Brian's schedule to talk about ethane preferably tomorrow after 11am or sometime Monday. Do either of those work?

Thanks



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 7:57 AM
**To:** Solan, David;Solan, David
**Subject:** FW: Appalachian Sky (Updated Executive Order draft to incorporate your suggestions)
**Attachments:** Appalachian Sky EO 6-5-18 Francis Brooke Meeting.docx

This came in while we were talking. We should discuss.

---

**From:** Matthew J Satterwhite [mailto:mjsatterwhite@aep.com]
**Sent:** Monday, June 04, 2018 10:30 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Anthony P Kavanagh <apkavanagh@aep.com>
**Subject:** Appalachian Sky (Updated Executive Order draft to incorporate your suggestions)

Brian,

I wanted to give you a heads up that I will be meeting with Francis Brooke at the White House executive offices tomorrow just before lunch on the Appalachian Sky executive order we discussed. Let me know if there are any updates you have.

I did take your advice and work in some more direct actions in the Executive Order. I am attaching the new version in redline form to what was previously circulated.

I added in some preamble language in the policy about the opioid epidemic and the impact economic development can have and also added some more specific actions by different cabinets, at your suggestion, to give more of a purpose for each agency. Here are some of the additions that we discussed:

(v) For the Department of Transportation, development of plans to improve the transportation capability of the region to support the shipping of supplies and goods to and from the Appalachian Corridor; (Sidenote: This should help coal too as the biggest barrier now is the lack of affordable transport on CSX out of the area)

(vi) For the Department of Commerce, development of support for the aluminum, steel and emerging metals industry in the Appalachian Corridor to support national security; (Sidenote: I thought this may help Braidy the new aluminum plant and others coming after)

(vii) For the Department of Education, development of apprenticeship programs and technical schools to support the Appalachian Corridor as a manufacturing hub;

(viii) For the Department of Department of Housing and Urban Development, development of a plan to study and address the quality of housing options in the Appalachian Corridor;

(ix) For the Environmental Protection Agency, determine a plan to advance the reclamation and development of brownfield sites for manufacturing locations for the purposes of the Appalachian Corridor; (Sidenote:



AMERICAN OVERSIGHT

This is an attempt to deal with abandoned sites like the AK Steel site in Ashland, taking up a lot of flat land that could be aerospace manufacturers).

Let me know if you have any spare time on Tuesday I can drop in and talk or if we can continue our conversation on getting this idea across the finish line. My meeting with Francis is at 11.

Matt

KENTUCKY POWER
MATTHEW J SATTERWHITE | PRESIDENT & COO - KY
MJSATTERWHITE@AEP.COM | D:606.327.2601 | C: (b) (6)
855 CENTRAL AVENUE, ASHLAND, KY 41101

---

**From:** Matthew J Satterwhite
**Sent:** Tuesday, May 15, 2018 8:24 AM
**To:** 'brian.mccormack@hq.doe.gov'
**Cc:** Anthony P Kavanagh
**Subject:** RE: Appalachian Sky (American Electric Power)

Brian,

I am just following up on the Appalachian Sky executive order with you. I know you had mentioned some ideas for edits. Senator McConnell's office has been in contact with Francis Brooke. I know you were traveling internationally after we talked in Kentucky, so I thought I would follow up again as a resource and see what we need to do. I will be in DC a few times over the next month. Maybe we can sit and talk further.

Matt

KENTUCKY POWER
MATTHEW J SATTERWHITE | PRESIDENT & COO - KY
MJSATTERWHITE@AEP.COM | D:606.327.2601 | C: (b) (6)
855 CENTRAL AVENUE, ASHLAND, KY 41101

---

**From:** Matthew J Satterwhite
**Sent:** Friday, April 06, 2018 10:32 AM
**To:** 'brian.mccormack@hq.doe.gov'
**Cc:** Anthony P Kavanagh
**Subject:** Appalachian Sky (American Electric Power)

Brian,

It was good meeting you yesterday in Hopkinsville. I know we were not able to continue the conversation on Appalachian Sky over lunch as we had hoped, but I understand you have at least 1,000 duties as Chief of Staff. But I am eager to see what changes I can make to the Order we wrote to fit what we talked about.

I heard your input that we should look for a way to expand the goal to reach other issues impacting Appalachia- opioids, workforce, and infrastructure as examples. Things that help provide purpose for the different cabinet offices. I think I



AMERICAN OVERSIGHT

have an idea on doing that and can provide a redline for you or we can talk further and then I can propose ideas. Let me know how I can make it as efficient as possible and provide a better product so that when Joe Craft sends his letter to the President urging him to sign the Order that we have the best product.

I know the Order has been through the VPs office and Commerce and the Kentucky Governor's office so I am not sure what version to work from to make changes. I am attaching a version I made some changes late last year to show it was a partnership with coal. This went to Commerce Sec Ross but I am not sure if this is the version you have or not. We should compare so I am starting from the one being shared in DC.

I will start working from this version but let me know ASAP if there is a new version and the best way to partner on this effort right now. I think this can be part of any upcoming announcement on diversification in Appalachia and know it will have an impact on the economy.

I copied Tony Kavanagh on this too so you have more access to us for any needs and because he is in touch with the Business Roundtable efforts.

KENTUCKY POWER
AEP

MATTHEW J SATTERWHITE | PRESIDENT & COO - KY
MJSATTERWHITE@AEP.COM | D:606.327.2601 | C (b) (6)
855 CENTRAL AVENUE, ASHLAND, KY 41101



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:00 AM
**To:** Brooke, Francis J. EOP/WHO
**Subject:** FW: Solar manufacturing prize press release
**Attachments:** EERE Solar Prize Rules Press Release V2.docx

Francis-

FYI we're getting ready to announce this. The idea of the prize came up back when the solar 201 case came up at USTR. Want to flag for your awareness.

---

**From:** Fitzsimmons, Alexander
**Sent:** Monday, June 04, 2018 10:16 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Solar manufacturing prize press release

Brian,

Per our discussion, attached is the solar manufacturing prize press release.

-Alex



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:07 AM
**To:** Deidre Almstead (Deidre.Almstead@hq.doe.gov);Gerdes, Stan
**Subject:** FW: Mtg // S1 Briefing

For scheduling.

---

**From:** Lira, Mathew L. EOP/WHO [mailto:(b) (6)
**Sent:** Monday, June 04, 2018 10:25 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Mtg // S1 Briefing

Brian –

(b) (5)

Wanted to put on your radar early, given the Secretary's busy schedule; happy to have the briefing at his office or facilitate office space over here if helpful. Hope all is going well.

Best,
Matt



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:07 AM
**To:** Varnasidis, Sophia
**Subject:** RE: pls call at your convenience. thanks. (b) (6)

Sounds good. I think Mark and I need to sit down and go through outreach list.

---

**From:** Varnasidis, Sophia
**Sent:** Monday, June 04, 2018 10:59 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: pls call at your convenience. thanks. (b) (6)

Ok I'm mtg. Will stop by when done

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:58 AM
**To:** Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
**Subject:** pls call at your convenience. thanks. (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:20 AM
**To:** Wallwork, Luke
**Subject:** FW: S1 DOE Cyber -- latest
**Attachments:** S1 DOE Cyber Conference June 2018PjrnPL (002)_(Zead.6.1)PL + BT.docx

I had received.

---

**From:** Naughton, Janet
**Sent:** Monday, June 04, 2018 10:39 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: S1 DOE Cyber -- latest

Was sent to you Friday at 3:07pm.

---

**From:** Naughton, Janet <Janet.Naughton@hq.doe.gov>
**Date:** Friday, Jun 01, 2018, 3:07 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Haddad, Zead <Zead.Haddad@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: S1 DOE Cyber -- latest

Dan,

Bill cleared and edited so ready for your review.

Janet

-----Original Message-----
From: Turenne, William
Sent: Friday, June 01, 2018 3:04 PM

My edits for the new language insertion are tracked in the attached.

Two things:

(b) (5)

This is ready for FO review and edit.

Thanks all,
Bill

-----Original Message-----
From: Naughton, Janet
Sent: Friday, June 01, 2018 2:27 PM



AMERICAN OVERSIGHT

To: Liben, Paul <Paul.Liben@hq.doe.gov>; Haddad, Zead <Zead.Haddad@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Subject: RE: S1 DOE Cyber -- latest

Did you send it back with inserted language? Please.

-----Original Message-----
From: Liben, Paul
Sent: Friday, June 01, 2018 1:43 PM
To: Haddad, Zead <Zead.Haddad@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Cc: Naughton, Janet <Janet.Naughton@hq.doe.gov>
Subject: RE: S1 DOE Cyber -- latest

(b) (5)

Thanks.

-----Original Message-----
From: Haddad, Zead
Sent: Friday, June 01, 2018 1:27 PM
To: Liben, Paul <Paul.Liben@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Cc: Naughton, Janet <Janet.Naughton@hq.doe.gov>
Subject: RE: S1 DOE Cyber -- latest

Bill, let us know if you approve of the new language.

Thank you.

-----Original Message-----
From: Liben, Paul
Sent: Friday, June 01, 2018 1:24 PM
To: Haddad, Zead <Zead.Haddad@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>
Subject: S1 DOE Cyber -- latest

Zead and Bill,

See attached....two copies, one redlined, the other clean.

Bill, I'm sending to you and Zead at once due to the time constraint Zead mentioned.

Thanks.

Paul



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:21 AM
**To:** S1 Schedule
**Subject:** Accepted: Meeting with Tom Linebarger, CEO of Cummins



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:21 AM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

Steve-

Have any preferred times this week?

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Friday, June 01, 2018 10:27 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: Secretary Perry/ LLA

Can't do today. Crazy because of these idiotic tariffs.

Let's shoot for next week.

Sent from my BlackBerry 10 smartphone.

---

**From:** McCormack, Brian
**Sent:** Wednesday, May 30, 2018 1:00 PM
**To:** Moore, Steve
**Subject:** RE: Secretary Perry/ LLA

We did not. Do you have preferred times tomorrow or Friday? I should be able to make most anything work.

---

**From:** Moore, Steve [mailto:Steve.Moore@heritage.org]
**Sent:** Wednesday, May 30, 2018 11:29 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Secretary Perry/ LLA

Brian, did we set up a time for me to come over to discuss the coal/nuclear issue? Looking forward to getting together with your team.

Steve

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Sent:** Thursday, May 24, 2018 10:27 AM



AMERICAN OVERSIGHT

**To:** Moore, Steve <Steve.Moore@heritage.org>
**Subject:** RE: Secretary Perry/ LLA

Sir,

Checking to see what your availability is to connect on this issue. Thank you.

Brian

---

**From:** McCormack, Brian
**Sent:** Monday, May 21, 2018 10:04 AM
**To:** 'steve.moore@heritage.org' <steve.moore@heritage.org>
**Subject:** Secretary Perry/ LLA

Steve,

It was good to run into you again at the Laffer meeting last week. As promised, attached is a copy of Secretary Perry's remarks (these are not for distribution). Also, here is the link to one story in Forbes and pasted below is another from E&E on the topic. Please let me know any available times on your schedule this week so we can try and reconnect in person.

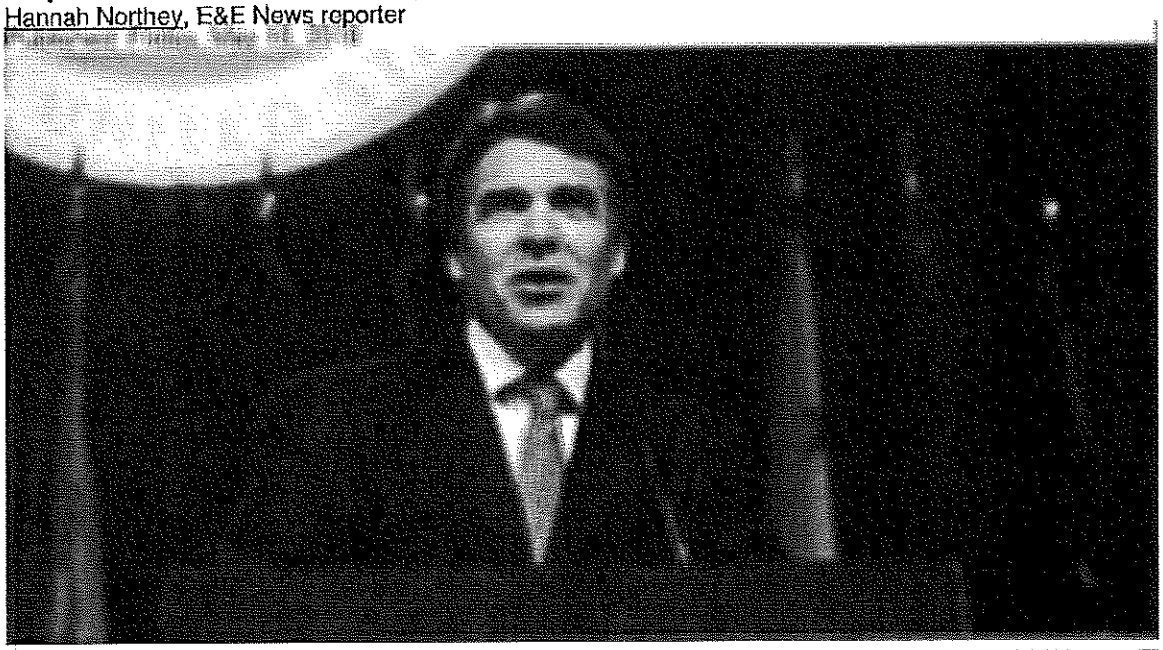
Best,
Brian

(b) (6) office
(b) (6) mobile

## E&E: WHITE HOUSE

## Top aides not considering rescue for coal, nuclear — source

Hannah Northey, E&E News reporter



Energy Secretary Rick Perry is considering policies to save coal and nuclear plants. Staff Sgt. Jim Greenhill/U.S. Army/Flickr



AMERICAN OVERSIGHT

The National Security Council is leading a new search for policies to safeguard the U.S. electric grid — talks that won't include efforts to subsidize specific coal and nuclear plants, said a senior Energy Department official.
The NSC Deputies Committee is helming discussions about what steps should be taken to ensure the U.S. energy system — transmission, pipelines, power plants and more — remains resilient in the face of cyberattacks, storms and other threats.
What's not included: subsidies for any particular type of generation, including ailing nuclear and coal plants that have been asking the agency for financial lifelines. The administration is leaving that option to Congress, said the official, who asked to remain anonymous.
Discussions unfolding on the panel — currently being led by Mira Ricardel, a deputy to White House national security adviser John Bolton — are focused on defense and resilience, not economics, said the official.
The NSC is President Trump's principal forum for considering national security and foreign policy matters with his senior national security advisers and Cabinet officials. DOE is a permanent member of the council.
Advertisement
Ricardel, who served as a former defense aide to Trump's campaign and worked in the Pentagon under the George W. Bush administration, is leading the committee, which also includes DOE Deputy Secretary Dan Brouillette, Deputy Secretary of State John Sullivan and Deputy Attorney General Rod Rosenstein, among others.
The official said the committee could formulate recommendations soon.
Current policy levers on the table — as part of a broader discussion within the standard White House policy process focused on critical infrastructure writ large — include the Defense Production Act of 1950, the Fixing America's Surface Transportation (FAST) Act of 2015 and the Energy Policy Act, said the official.
Even though such policies are being considered, the official reiterated the panel is not suggesting there is any economic emergency and said no singular company's situation would be factored into any recommendations that may be produced.
When asked what recommendations discussions could generate, the official said it's not yet clear, nor is there a definitive timeline.
The official confirmed DOE is in the process of identifying defense-critical electric infrastructure under the FAST Act — a move Bruce Walker, DOE's assistant secretary for electricity delivery and energy reliability, shared with grid overseers last week (*Energywire*, May 11).
Walker said that law directed DOE to "identify what the defense-critical electric infrastructure was in the United States."
When asked whether that designation could lead to financial support, the DOE official said simply pointing out that a facility is important to the grid doesn't equate to a subsidy.
The official's comments offer a sharp contrast to a steady stream of reports of the administration considering the statutes to throw certain facilities a financial lifeline.
Separate from the NSC discussions is a direct request from an Ohio-based utility for DOE to directly intervene using federal statute.
In late March, FirstEnergy Corp.'s generating subsidiary made a formal request for the department to use its authority under Section 202(c) of the Federal Power Act to declare a grid emergency and direct subsidies to unprofitable coal and nuclear plants.
DOE is still reviewing that application.
A number of grid experts have warned that protecting the power grid by subsidizing coal and nuclear misses other important threats and ignores more affordable and effective defenses (*Energywire*, May 3).

---

**Steve Moore**
*Distinguished Visiting Fellow*
*Institute for Economic Freedom*
The Heritage Foundation
214 Massachusetts Avenue, NE
Washington, DC 20002
202-608-6064
heritage.org



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:34 AM
**To:** (b) (6)
**Subject:** RE: (b) (6)

(b) (6)

I just wanted to connect with you. Our WH Liaison office informed me they had tried reaching out to you with regards to coming in for an interview. (b) (6)

Thank you.

---

**From:** (b) (6) [mailto:(b) (6)
**Sent:** Wednesday, May 23, 2018 1:54 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** (b) (6)

Hi Brian,

I apologize -- I just noticed this email was stuck in my Outbox on my phone! (b) (6)

Thank you again,
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:44 AM
**To:** Uddo, Joe
**Subject:** RE: CI hires

(b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:40 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: CI hires

All for Legislative Affairs Advisor. (b) (6)

-----Original Message-----
From: McCormack, Brian
Sent: Monday, June 04, 2018 11:38 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>
Subject: RE: CI hires

For which positions? (b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:37 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: CI hires

Brian,
(b) (6)

Joe

Joseph F. Uddo III
White House Liaison
U.S. Department of Energy
O: 202.586.3694
Joe.Uddo@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:49 AM
**To:** Habansky, Sarah
**Subject:** FW: (b) (5)

Do you know if anything has been tasked out?

-----Original Message-----
From: McGinley, William J. EOP/WHO [mailto:(b) (6) ]
Sent: Monday, June 04, 2018 11:46 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Staff Secretary <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >;
McBride, Emily J. EOP/WHO <(b) (6) >
Subject: (b) (5)

Brian,

Hope you had a good weekend. (b) (5)

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:03 AM
**To:** Lotto, Adrienne
**Subject:** FW: staff meeting request

Can you have someone connect? Dan is a solid guy.

---

**From:** Dan Meyer [mailto:dmeyer@dubersteingroup.com]
**Sent:** Monday, June 04, 2018 12:02 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** staff meeting request

Hi Brian,

I hope all is well and you are enjoying your time at DOE.

I was hoping you could point me in the right direction to schedule a meeting with the appropriate person at the Department.

In mid-April the DOE announced that the Office of Electricity Delivery and Energy Reliability's Cybersecurity for Energy Delivery Systems (CEDS) program "will seek applications to conduct research, development, and demonstration (RD&D) for innovative approaches to advance cyber resilient energy delivery systems." Here's a copy of the press release: https://www.energy.gov/articles/doe-announces-investment-strengthen-and-secure-nation-s-critical-energy-infrastructure.

I have a client, Accenture, that may have an interest in applying but would like to meet with the appropriate person to get more information. Can you let me know to whom we should reach out?

Thanks.

Dan
**Dan Meyer**
**Duberstein Group**
**202-728-1100**



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:07 AM
**To:** Varnasidis, Sophia
**Cc:** Sanford, Jessica L.
**Subject:** RE: meeting w/S3

Sure does. Want to add in Melissa and Elise? Elise and I had a brief convo about how we're going to need to adjust on the fly due to the document getting out.

-----Original Message-----
From: Varnasidis, Sophia
Sent: Monday, June 04, 2018 12:05 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Sanford, Jessica L. <Jessica.Sanford@hq.doe.gov>
Subject: meeting w/S3

Brian - S3 is free at 1:30, that work for you?

SOPHIA A. VARNASIDIS
Chief of Staff
Office of the Under Secretary of Energy

U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-0057



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:10 AM
**To:** McGinley, William J. EOP/WHO
**Cc:** Staff Secretary;Mocarski, Ashley D. EOP/WHO;McBride, Emily J. EOP/WHO;Habansky, Sarah
**Subject:** RE: (b) (5)

Yes, we'll have them over.

-----Original Message-----
From: McGinley, William J. EOP/WHO [mailto:William.(b) (6) ]
Sent: Monday, June 04, 2018 11:46 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Staff Secretary (b) (6) ; Mocarski, Ashley D. EOP/WHO (b) (6) ;
McBride, Emily J. EOP/WHO (b) (6)
Subject: (b) (5)

Brian,

Hope you had a good weekend. (b) (5)

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 9:21 AM
**To:** Burnison, Melissa
**Subject:** Murkowski

Melissa-

Please call when you can. Just want to nail this down if we want S1 to call her today.

Draft:

(b) (5)



AMERICAN OVERSIGHT

Document 100

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **From:** | McCormack, Brian |
| **Sent:** | Monday, June 04, 2018 10:06 AM |
| **To:** | Menezes, Mark |
| **Subject:** | Accepted: Mtg to discuss lists |



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 10:08 AM
**To:** Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Edward McGinnis (Edward.McGinnis@Nuclear.Energy.Gov);Jaworowski, Suzanne;Sneed, John;Varnasidis, Sophia
**Subject:** FW: Follow up

Please see below. NE - need input on what are important milestones to consider an event.

-----Original Message-----
From: Anderson, Bryan D. [mailto:BRANDERS@SOUTHERNCO.COM]
Sent: Thursday, May 31, 2018 2:09 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: Follow up

Mr. McCormack I wanted to follow up on some possible milestones for your consideration of a visit to the Vogtle 3/4 Nuclear Facility.

1. End of June 2018 – Close on DOE loan guarantees
2. June 20, 2018<x-apple-data-detectors://0> – Complete Unit 3 Shield Building reinforced concrete
3. August 24, 2018<x-apple-data-detectors://1> – Set Unit 4 Steam Generator B
4. Q1 2019 –Containment Ring 3 / Vessel Top Head / Test Polar Crane

the last option (in bold) would be the most impressive from a construction standpoint; however, the loan guarantee closure could be compelling from a DOE and media perspective?

Please let me know how I can be of further assistance. Thank you.
Bryan Anderson



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 10:23 AM
**To:** (b) (6) (b) (6)
**Subject:** touching base on Qubitekk

Gentlemen,

Shannon Grove recently mentioned to me your efforts. Can you send me your latest background document so that I can share it with some of my colleagues here at the Department of Energy? Thank you.

Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 11:29 AM
**To:** Habansky, Sarah;Wilmot, Dan
**Cc:** Moore, Janelle
**Subject:** RE: FEMA briefing talkers

This has to be 2 mins or less.

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 2:02 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** FW: FEMA briefing talkers
**Importance:** High

For your review already reviewed by Bruce

---

**From:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 1:36 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Moore, Janelle <Janelle.Moore@hq.doe.gov>, Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

With edits

Ken

---

**From:** Lotto, Adrienne
**Sent:** Monday, June 04, 2018 1:16 PM
**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Not sure who has the pen on this.

Per Bruce, (b) (5)



AMERICAN OVERSIGHT

Thanks,

*Adrienne Lotto*

Chief of Staff for Office of Electricity (OE) and
Cybersecurity, Energy Security and Emergency Response (CESER)
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Moore, Janelle
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Thanks so much!

---

**From:** Hoffman, Patricia
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Bruce is reviewing. We will get back to you shortly. Copying Adrienne for awareness.

---

**From:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 12:46 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Good afternoon,

I am checking in on the status of the materials for the briefing book. Dan Wilmot will need to time review the talking points, so just making sure I get them in enough time to circulate. Please advise.

Thank you,
Janelle
-----Original Message-----
From: Buell, Kenneth
Sent: Thursday, May 31, 2018 11:46 AM
To: Moore, Janelle <Janelle.Moore@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>



AMERICAN OVERSIGHT

Subject: RE: FEMA briefing

In work.

Ken

Ken Buell | Director
Emergency Response and Recovery
Infrastructure Security & Energy Restoration (ISER) Division
Office of Electricity Delivery & Energy Reliability (OE)
U.S. Department of Energy

Address: 1E-278 | 1000 Independence Ave SW | Washington, DC 20585
Office: 202-586-3362 | Mobile: (b) (6)
Email: kenneth.buell@hq.doe.gov

-----Original Message-----
From: Moore, Janelle
Sent: Thursday, May 31, 2018 11:18 AM
To: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA briefing

Hello,

Please find attached the memo template, for your reference. Also, I realize this is a speedy turnaround, but please send the materials to me by 10:00 a.m. on Monday.

Thank you,
Janelle
6-1726

-----Original Message-----
From: Streit, Devon (Lisa) HQ
Sent: Thursday, May 31, 2018 11:07 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

We'll take care of it. Ken, please take the lead. D.

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 11:04 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

Thanks - looping on Janelle who is handling the book next Wednesday.

-----Original Message-----



AMERICAN OVERSIGHT

From: Hoffman, Patricia
Sent: Thursday, May 31, 2018 11:00 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Subject: RE: FEMA briefing

Devon Streit. Pat.

Patricia Hoffman
Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 10:26 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Subject: FEMA briefing

Hi Pat-

S1 has a 2018 Hurricane Preparedness Briefing at FEMA next Wednesday. Who from your office would I reach out to for materials needed for his book and pre-brief?

Thanks
Sarah



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:12 PM
**To:** Thompson, Ryan
**Subject:** RE: Cobra Energy CEO - Puerto Rico - meeting request

Ryan-

The appropriate person to connect with on PREPA matter is Walt Higgins. He is the CEO of PREPA and his contact information is whiggins@prepa.com or 787-521-4666.

---

**From:** Thompson, Ryan [mailto:thompsonr@akingump.com]
**Sent:** Monday, June 04, 2018 2:55 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Cobra Energy CEO - Puerto Rico - meeting request

Brian,

I hope you are well! As I mentioned previously, we represent Cobra Energy - an Oklahoma based transmission company that is rebuilding the Puerto Rico electrical grid.

On June 12th and 13th, Arty Straehla, the CEO of Mammoth Energy, and Keith Ellison, the President of its subsidiary Cobra, will be in D.C. and available to discuss Cobra's work in Puerto Rico restoring the electric grid. I am reaching out to see if we could schedule a meeting with you to answer any questions and also talk a bit more about their incredible work on the island.

They are currently available on next Tuesday (6/12) or Wednesday (6/13).

https://www.mammothenergy.com/cobra-energy

Do you have time for a quick meeting with Arty and Keith?

Thanks in advance for your consideration!

-Ryan

**Ryan Day Thompson**
**AKIN GUMP STRAUSS HAUER & FELD LLP**
Mobile: +1(b) (6) | thompsonr@akingump.com | akingump.com | Bio

The information contained in this e-mail message is intended only for the personal and confidential use of the recipient(s) named above. If you have received this communication in error, please notify us immediately by e-mail, and delete the original message.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:13 PM
**To:** Habansky, Sarah
**Subject:** FW: FOR REVIEW: FEMA HUD Remarks/TPs
**Attachments:** 20180603_SOHUD Talking Points for June 6 FEMA Hurricane Season Kickoff E....docx

An example...

---

**From:** Staff Secretary [mailto:(b) (6) ]
**Sent:** Monday, June 04, 2018 3:01 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <DL.LEGAFFAIRS.StaffSec@whmo.mil>; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Staff Secretary <(b) (6) >; McGinley, William J. EOP/WHO <(b) (6) >; Policy Coordinator <(b) (6) >
**Subject:** FOR REVIEW: FEMA HUD Remarks/TPs

Attached for your review are Sec. Carson's remarks for Wednesday's meeting at FEMA.

Please review and send any comments/edits by **8 PM tonight**. Affirmative clearance requested from **NSC, WHCO, and DHS**.

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:21 PM
**To:** Kolb, Ingrid
**Subject:** ready for pick up



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 12:27 PM
**To:** Uddo, Joe
**Subject:** RE: CI hires

Has a Leg Advisor role been discussed (b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:40 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: CI hires

All for Legislative Affairs Advisor. (b) (6)

-----Original Message-----
From: McCormack, Brian
Sent: Monday, June 04, 2018 11:38 AM
To: Uddo, Joe <Joe.Uddo@hq.doe.gov>
Subject: RE: CI hires

For which positions? (b) (6)

-----Original Message-----
From: Uddo, Joe
Sent: Monday, June 04, 2018 11:37 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: CI hires

Brian,
You met with (b) (6) . Are you ok with all of them?

Joe

Joseph F. Uddo III
White House Liaison
U.S. Department of Energy
O: 202.586.3694
Joe.Uddo@hq.doe.gov



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:02 PM
**To:** Maddox, Mark
**Subject:** do you have contact information for Charles McConnell at RICE?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:05 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Will do.

---

**From:** Joan Avagliano [mailto:JAvagliano@dgi-nyc.com]
**Sent:** Monday, June 04, 2018 4:09 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** June 8

Yes, Brian, Friday, June 8 would be the date for the joint announcement with Ms. Rometty and Secretary Perry / if you get clearance today would you let us know? or of course when you do hear?
Many thanks.
Joan



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:06 PM
**To:** Uddo, Joe
**Cc:** Wilmot, Dan
**Subject:** RE: (b) (6)

Not that I recall

---

**From:** Uddo, Joe
**Sent:** Monday, June 04, 2018 4:05 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: (b) (6)

Have either of you guys had any interaction with this person (b) (6) Possible detail.

---

**From:** Tripodi, Cathy
**Sent:** Monday, June 04, 2018 3:58 PM
**To:** Uddo, Joe <Joe.Uddo@hq.doe.gov>
**Subject:** (b) (6)

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:16 PM
**To:** Hrkman, Lou;Bolton, Dwayne S.
**Subject:** connecting you both

**Dwayne – meet Lou. You both should connect when convenient.**

**Lou Hrkman**
Policy Adviser
Congressman David B. McKinley, P.E. (WV-01)
2239 Rayburn House Office Building
Washington, DC 20515
(202) 225-4172






AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:19 PM
**To:** Harbin, Christine;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Gerdes, Stan
**Cc:** Lotto, Adrienne
**Subject:** RE: Government Day at the World Gas Conference

Stan and Deidre – is this on our list of events during WGC?

---

**From:** Harbin, Christine
**Sent:** Monday, June 04, 2018 4:07 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** FW: Government Day at the World Gas Conference

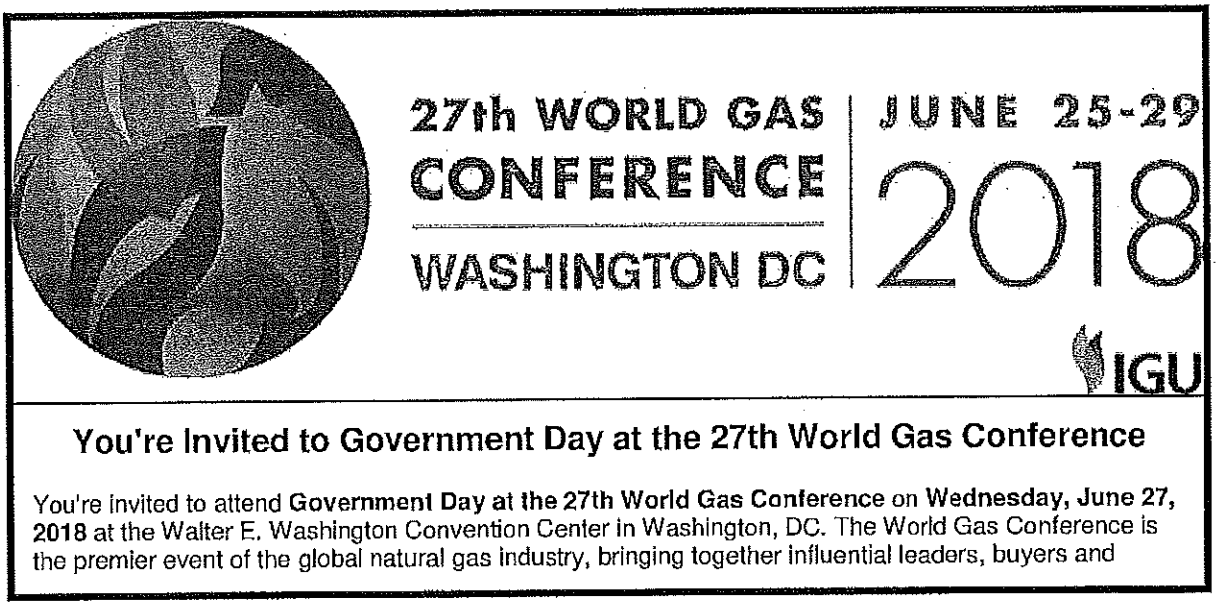
Hi Brian -- Is the Secretary hosting a reception during the AGA, and, if so, may Bruce please attend? Thanks for considering. -- Chrissy.

---

**From:** Jenkins, Erica [mailto:EJenkins@aga.org]
**Sent:** Tuesday, May 29, 2018 3:08 PM
**To:** Harbin, Christine <Christine.Harbin@hq.doe.gov>
**Subject:** FW: Government Day at the World Gas Conference

Christine,

That is great news. I would love to register for you all but it is out of my control and they will have very strict rules about everyone registering through the link below due to security. If you could please have everyone register using the link below you will all be set to attend the June 27th Government Day Events. Let me know if this is an issue.






AMERICAN OVERSIGHT

sellers, policy-makers and experts from around the world.

Government Day attendees will have the opportunity to meet with key members of the natural gas industry and to tour the conference exhibition. There will be a lunch reception and an evening reception for attendees as well. Registration for one or both events is available.

**Lunch Reception and Exhibition Tours**
**11:30 a.m. – 1:30 p.m.**
**Where:** Walter E. Washington Convention Center: Room 156
Brief remarks will be made at a lunch reception followed by tours of the exhibition hall.

**Evening Reception and Exhibition Tours**
**4:30 p.m. – 6:00 p.m.**
**Where:** Walter E. Washington Convention Center: American Gas Association booth (#2600) at the entrance of the exhibition hall
Attendees will enjoy a reception and will have the opportunity to tour the exhibition hall.

Registration is free, but must be done in advance. For questions, please contact Erica Jenkins at 202-824-7231 or ejenkins@aga.org.

Click here to register online

**World Gas Conference**
**June 25 - 29, 2018**
**Walter E. Convention Center**
**801 Mt .Vernon Place, NW**
**Washington, DC 20001**

Erica Jenkins | AGA Government Relations and Public Affairs
202-824-7231 | ejenkins@aga.org
400 North Capitol Street, NW | Washington, DC 20001
© 2018 American Gas Association
Please click here to unsubscribe

SHARE MORE...

Thanks,

**Erica Jenkins | Manager, Government Relations and Public Affairs**
American Gas Association
400 N. Capitol St., NW | Washington, DC | 20001
P: 202-824-7231 | F: 202-824-9131 | ejenkins@aga.org

The American Gas Association represents more than 200 local energy companies committed to the safe and reliable delivery of clean natural gas to more than 70 million customers throughout the nation.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:21 PM
**To:** Habansky, Sarah
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

We have an update yet?

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 3:19 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

Thanks – I will send it to them

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 3:13 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: FOR REVIEW: FEMA HUD Remarks/TPs

An example...

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Monday, June 04, 2018 3:01 PM
**To:** Sanders, Sarah H. EOP/WHO (b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO (b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO (b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Staff Secretary <(b) (6) >; McGinley, William J. EOP/WHO (b) (6) >; Policy Coordinator <(b) (6) >
**Subject:** FOR REVIEW: FEMA HUD Remarks/TPs

Attached for your review are Sec. Carson's remarks for Wednesday's meeting at FEMA.

Please review and send any comments/edits by **8 PM tonight**. Affirmative clearance requested from **NSC, WHCO, and DHS**.



AMERICAN OVERSIGHT

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:21 PM
**To:** Almstead, Deidre;Haus, Bob;Gerdes, Stan;Turenne, William
**Subject:** RE: Sec. Perry June 25?

sure

---

**From:** Almstead, Deidre
**Sent:** Monday, June 04, 2018 4:14 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>; Turenne, William <William.Turenne@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Sec. Perry June 25?

S1 isn't able to participate- we can offer S4- do you want us to reach out to the WH to let them know?

---

**From:** Haus, Bob <Bob.Haus@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 4:06 PM
**To:** Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Sec. Perry June 25?

FYI re June 25.

---

**From:** Weld, Jeff D. EOP/OSTP <(b) (6) >
**Date:** Monday, Jun 04, 2018, 12:29 PM
**To:** Haus, Bob <Bob.Haus@hq.doe.gov>
**Subject:** Sec. Perry June 25?

Good morning Bob,
I'm happy to confirm that Sec. DeVos (ED), Admin. Bridenstine (NASA), Sec. Skorton (Smithsonian) and COO Ferrini-Mundy (N5F) each commit to our Panel on the evening of June 25 at EEOB. (Agenda attached.) Can you please let me know timeline re: Sec. Perry's decision to join us? [Sending same request to Sec. Acosta.]

Thank you,
Jeff

Jeff Weld PhD
Senior Policy Advisor and Assistant Director, STEM Education
Office of Science and Technology Policy
Executive Office of the President
C: (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:21 PM
**To:** Mashburn, John;Wilmot, Dan
**Subject:** RE: (b) (6)

(b) (6)

-----Original Message-----
From: Mashburn, John
Sent: Monday, June 04, 2018 4:17 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
Subject: (b) (6)

Brian/Dan -- (b) (6)

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:24 PM
**To:** Habansky, Sarah
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

Call Adrienne

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 4:23 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

I have emailed and called Pat and Adrienne saying we need them. I also sent the HUD sample

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:21 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

We have an update yet?

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 3:19 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FOR REVIEW: FEMA HUD Remarks/TPs

Thanks – I will send it to them

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 3:13 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** FW: FOR REVIEW: FEMA HUD Remarks/TPs

An example...

---

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Monday, June 04, 2018 3:01 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO (b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <Douglas.L.Hoelscher@who.eop.gov>; DL



AMERICAN OVERSIGHT

WHO LEG AFFAIRS Staff Sec <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO (b) (6) ; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Staff Secretary <(b) (6) >; McGinley, William J. EOP/WHO <(b) (6) >; Policy Coordinator <(b) (6)
**Subject:** FOR REVIEW: FEMA HUD Remarks/TPs

Attached for your review are Sec. Carson's remarks for Wednesday's meeting at FEMA.

Please review and send any comments/edits by **8 PM tonight**. Affirmative clearance requested from **NSC, WHCO, and DHS**.

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:25 PM
**To:** Maddox, Mark
**Subject:** RE: Charles D McConnell

Thank you

-----Original Message-----
From: Maddox, Mark
Sent: Monday, June 04, 2018 4:25 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: FW: Charles D McConnell

Here you go!

Mark R. Maddox
Principal Deputy Assistant Secretary
Office of Fossil Energy
U.S. Department of Energy
Ph: 202.586.1619
Email: mrmaddox@hq.doe.gov
S: : (b) (6), (b) (7)(C)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 1:44 PM
**To:** Garrish, Theodore
**Subject:** FW: hi Brian,

?

---

**From:** Sean Todd <sean@foxpotomac.com>
**Date:** Monday, Jun 04, 2018, 4:40 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** hi Brian,

Hi Brian,

Per my phone message this morning I am emailing to request a brief introductory meeting on behalf of Holtec International; Holtec is the largest US exporter of nuclear components and technology, and is helping lead the resurgence of the US nuclear industry with its presence at half of the US nuclear reactors, its consolidated interim storage efforts in New Mexico as well as financing its own small modular reactor.

The lead for the Government business unit, Myron Kaczmarsky, is here in town for the EFCOG meeting, and is available all day tomorrow Tuesday the 5th, most of Wednesday the 6th, and most of Thursday the 7th. We would be pleased to meet with you and pass along our discussions with Mike Catanzarro, Francis Brooke, Mick Mulvaney on issues for the White House Nuclear Review as well as share our perspectives on job creation, manufacturing in the nuclear industry, and nuclear exports.

Thanks very much for your assistance, and I look forward to our continued dialogue.

Warm regards,
Sean Todd

P.S. we met briefly during your meeting with NIC earlier this year, and we have loads of mutual colleagues, incl my friends & neighbors, (b) (6) and I have been friends for many years.

*Sean Todd*
*Fox Potomac Resources LLC*
*Founder/President*
*644 Massachusetts Avenue, NE*
*Suite 505*
*Washington, DC 20002*

*V: 202.543.0808*
*M:* (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:02 PM
**To:** Wilmot, Dan;Hynes, Shaylyn
**Cc:** Turenne, William;Habansky, Sarah;Gerdes, Stan
**Subject:** RE: CNBC opportunity on June 8

(b) (5)

---

**From:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 2:50 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

(b) (5)

(b) (5)

---

**From:** Hynes, Shaylyn
**Sent:** Monday, June 04, 2018 2:36 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

Yes. CNBC interview with ibm ceo would be in lieu of the media availability.

(b) (5)

---

**From:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 1:34 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

(b) (5)



AMERICAN OVERSIGHT

**From:** Hynes, Shaylyn
**Sent:** Monday, June 04, 2018 2:28 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Turenne, William <William.Turenne@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** FW: CNBC opportunity on June 8

Brian/dan

(b) (5)

---

**From:** McCorkle, Morgan L. <mccorkleml@ornl.gov>
**Date:** Monday, Jun 04, 2018, 1:12 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>, Turenne, William <William.Turenne@hq.doe.gov>
**Subject:** Re: CNBC opportunity on June 8

Hi Shaylyn, Sarah – Apologies for bugging you again. (b) (5)

Thanks,
Morgan

---

**From:** "Hynes, Shaylyn" <Shaylyn.Hynes@hq.doe.gov>
**Date:** Monday, June 4, 2018 at 10:50 AM
**To:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>, "Habansky, Sarah" <Sarah.Habansky@hq.doe.gov>
**Subject:** RE: CNBC opportunity on June 8

Thanks Morgan. Apologies for the delay. I am traveling with the secretary and we are extremely understaffed this week, I will call you tomorrow morning to hammer this all out. My colleague, Sarah habansky will be helping me with Friday now so please loop her in on emails moving forward.

(b) (6) Sarah may have availability to get a status check on where things stand today, but I Look forward to chatting tomorrow!

---

**From:** McCorkle, Morgan L. <mccorkleml@ornl.gov>
**Date:** Monday, Jun 04, 2018, 9:42 AM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>



AMERICAN OVERSIGHT

**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Hi Shaylyn, Bill –

(b) (5)

We await your guidance.

Morgan

---

**From:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018 at 10:20 PM
**To:** "Hynes, Shaylyn" <Shaylyn.Hynes@hq.doe.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Thanks, Shaylyn. I hope your travel with S-1 is going smoothly! Another quick question:

(b) (5)

Thanks!
Morgan

---

**From:** "Hynes, Shaylyn" <Shaylyn.Hynes@hq.doe.gov>
**Date:** Thursday, May 31, 2018 at 4:28 PM
**To:** "Turenne, William" <William.Turenne@hq.doe.gov>, "McCorkle, Morgan L." <mccorklemL@ornl.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>
**Subject:** RE: CNBC opportunity on June 8

Hi there- I am on travel, (b) (5)
Will get back with you tomorrow! Thanks!



AMERICAN OVERSIGHT

**From:** Turenne, William <William.Turenne@hq.doe.gov>
**Date:** Thursday, May 31, 2018, 3:09 PM
**To:** McCorkle, Morgan <mccorkleml@ornl.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>
**Subject:** RE: CNBC opportunity on June 8

That's a Shaylyn question. (b) (5)

---

**From:** McCorkle, Morgan L. <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018, 4:01 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, Hummel, Allison L. <hummelal@ornl.gov>, Twardy, Lindsey Kressin <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Bill – Quick follow-up. (b) (5)

Thanks,
Morgan

---

**From:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018 at 3:34 PM
**To:** "Hynes, Shaylyn (HQ)" <shaylyn.hynes@hq.doe.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>, "Twardy, Lindsey Kressin" <twardylk@ornl.gov>
**Subject:** Re: CNBC opportunity on June 8

Bill – Thanks for the call just now.

Vineeta – (b) (5)

Morgan

---

**From:** "McCorkle, Morgan L." <mccorkleml@ornl.gov>
**Date:** Thursday, May 31, 2018 at 2:07 PM
**To:** "Hynes, Shaylyn (HQ)" <shaylyn.hynes@hq.doe.gov>, "Turenne, William" <William.Turenne@hq.doe.gov>
**Cc:** Vineeta Durani <vineeta.durani@us.ibm.com>, "Hummel, Allison L." <hummelal@ornl.gov>
**Subject:** CNBC opportunity on June 8

Shaylyn, Bill –

I'd like to introduce you to Vineeta Durani, IBM VP for Marketing & Communications, copied here. (b) (5)



AMERICAN OVERSIGHT

(b) (5)

Thanks,
Morgan

**Morgan McCorkle**
Media Relations Manager
Oak Ridge National Laboratory
Office: 865-574-7308
Cell:(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:25 PM
**To:** Colgary, James
**Subject:** RE: DOE/FERC

I have no idea.

---

**From:** Colgary, James <James.Colgary@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:17 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: DOE/FERC

Any idea what Anthony wants to talk about? (b) (5)

---

**From:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Date:** Monday, Jun 04, 2018, 5:09 PM
**To:** Colgary, James <James.Colgary@hq.doe.gov>
**Subject:** DOE/FERC

Good afternoon Jim,
I was wondering if you would mind giving me a call when you have a moment? Thank you in advance and my number is (b) (6)

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:41 PM
**To:** Habansky, Sarah;Tripodi, Cathy;Wilmot, Dan;Haus, Bob;Hynes, Shaylyn;Turenne, William;Almstead, Deidre;Gerdes, Stan;Wallwork, Luke
**Subject:** RE: CNBC Request for Joint Interview from Oak Ridge with Secretary + IBM CEO Ginni Rometty

(b) (5)

---

**From:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:27 PM
**To:** Tripodi, Cathy <Cathy.Tripodi@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Subject:** RE: CNBC Request for Joint Interview from Oak Ridge with Secretary + IBM CEO Ginni Rometty

Shaylyn is having email issues but is running the request through the channels currently

---

**From:** Tripodi, Cathy <Cathy.Tripodi@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:22 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, Haus, Bob <Bob.Haus@hq.doe.gov>, Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, Turenne, William <William.Turenne@hq.doe.gov>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>, Wallwork, Luke <Luke.Wallwork@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** CNBC Request for Joint Interview from Oak Ridge with Secretary + IBM CEO Ginni Rometty

Hi All:

(b) (5)

IBM needs confirmation tonight, June 4, as to whether Secretary Perry can do a joint CNBC interview with IBM CEO Ginni Rometty. (b) (6)

Please let me know your thoughts.



AMERICAN OVERSIGHT

Thank you,
Cathy T.
202.586.5050



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 2:42 PM
**To:** Habansky, Sarah;Wilmot, Dan
**Subject:** RE: FEMA briefing

Go for it

---

**From:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:41 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: FEMA briefing

Do you need me to send them to WH ?

---

**From:** Wilmot, Dan
**Sent:** Monday, June 04, 2018 5:41 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** RE: FEMA briefing

Much better

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:39 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** RE: FEMA briefing

Boring but I'm fine. Looping in Dan

---

**From:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:18 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: FEMA briefing

---

**From:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:17 PM



AMERICAN OVERSIGHT

**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Buell, Kenneth <Kenneth.Buell@hq.doe.gov>, Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>, Moore, Janelle <Janelle.Moore@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Please see attached.

*Patricia Hoffman*

Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 4:25 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing
**Importance:** High

All just circling back on this – Brian needs these by 5pm in a shorter form. Apologies for the changes and several emails

---

**From:** Habansky, Sarah
**Sent:** Monday, June 04, 2018 3:17 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Here is an example of HUD – fairly short

---

**From:** Buell, Kenneth
**Sent:** Monday, June 04, 2018 1:37 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

With edits

Ken

---

**From:** Lotto, Adrienne
**Sent:** Monday, June 04, 2018 1:16 PM



AMERICAN OVERSIGHT

**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Not sure who has the pen on this.

(b) (5)

Thanks,

*Adrienne Lotto*

Chief of Staff for Office of Electricity (OE) and
Cybersecurity, Energy Security and Emergency Response (CESER)
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Moore, Janelle
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Thanks so much!

---

**From:** Hoffman, Patricia
**Sent:** Monday, June 04, 2018 12:49 PM
**To:** Moore, Janelle <Janelle.Moore@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA briefing

Bruce is reviewing. We will get back to you shortly. Copying Adrienne for awareness.

---

**From:** Moore, Janelle <Janelle.Moore@hq.doe.gov>



AMERICAN OVERSIGHT

**Date:** Monday, Jun 04, 2018, 12:46 PM
**To:** Buell, Kenneth <Kenneth.Buell@hq.doe.gov>, Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>, Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, Stubbs, Jackson (CONTR) <Jackson.Stubbs@hq.doe.gov>
**Subject:** RE: FEMA briefing

Good afternoon,

I am checking in on the status of the materials for the briefing book. Dan Wilmot will need to time review the talking points, so just making sure I get them in enough time to circulate. Please advise.

Thank you,
Janelle
-----Original Message-----
From: Buell, Kenneth
Sent: Thursday, May 31, 2018 11:46 AM
To: Moore, Janelle <Janelle.Moore@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA briefing

In work.

Ken

Ken Buell | Director
Emergency Response and Recovery
Infrastructure Security & Energy Restoration (ISER) Division
Office of Electricity Delivery & Energy Reliability (OE)
U.S. Department of Energy

Address: 1E-278 | 1000 Independence Ave SW | Washington, DC 20585
Office: 202-586-3362 | Mobile: (b) (6)
Email: kenneth.buell@hq.doe.gov

-----Original Message-----
From: Moore, Janelle
Sent: Thursday, May 31, 2018 11:18 AM
To: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA briefing

Hello,

Please find attached the memo template, for your reference. Also, I realize this is a speedy turnaround, but please send the materials to me by 10:00 a.m. on Monday.

Thank you,
Janelle
6-1726

-----Original Message-----



AMERICAN OVERSIGHT

From: Streit, Devon (Lisa) HQ
Sent: Thursday, May 31, 2018 11:07 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Buell, Kenneth <Kenneth.Buell@hq.doe.gov>
Cc: Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

We'll take care of it. Ken, please take the lead. D.

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 11:04 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>; Moore, Janelle <Janelle.Moore@hq.doe.gov>
Subject: RE: FEMA briefing

Thanks - looping on Janelle who is handling the book next Wednesday.

-----Original Message-----
From: Hoffman, Patricia
Sent: Thursday, May 31, 2018 11:00 AM
To: Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Cc: Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
Subject: RE: FEMA briefing

Devon Streit. Pat.

Patricia Hoffman
Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

-----Original Message-----
From: Habansky, Sarah
Sent: Thursday, May 31, 2018 10:26 AM
To: Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>
Subject: FEMA briefing

Hi Pat-

S1 has a 2018 Hurricane Preparedness Briefing at FEMA next Wednesday. Who from your office would I reach out to for materials needed for his book and pre-brief?

Thanks
Sarah



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 4:10 PM
**To:** dvandongen@naw.org
**Subject:** FW: Statement by the President

---

**From:** White House Press Office <whitehouse-noreply@messages.whitehouse.gov>
**Date:** Monday, Jun 04, 2018, 6:59 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
**Subject:** Statement by the President

THE WHITE HOUSE
Office of the Press Secretary

FOR IMMEDIATE RELEASE
JUNE 4, 2018

**Statement by the President**

The Philadelphia Eagles are unable to come to the White House with their full team to be celebrated tomorrow. They disagree with their President because he insists that they proudly stand for the National Anthem, hand on heart, in honor of the great men and women of our military and the people of our country. The Eagles wanted to send a smaller delegation, but the 1,000 fans planning to attend the event deserve better. These fans are still invited to the White House to be part of a different type of ceremony — one that will honor our great country, pay tribute to the heroes who fight to protect it, and loudly and proudly play the National Anthem. I will be there at 3:00 p.m. with the United States Marine Band and the United States Army Chorus to celebrate America.

###

---

Unsubscribe

The White House · 1600 Pennsylvania Avenue, NW · Washington DC 20500 · 202-456-1111



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:03 PM
**To:** Storch, Thomas
**Subject:** RE: Emil Argentina June G20

Thanks, (b) (5)

---

**From:** Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 6:03 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Emil Argentina June G20

Brian – I spoke with Emil (twice) today; I told him the only private sector engagement at G20 that I'm aware of is on the natural gas day on June 12th which S1 won't be there for.

(b) (5)

---

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 10:25 AM
**To:** Storch, Thomas <Thomas.Storch@hq.doe.gov>
**Subject:** FW: Emil Argentina June G20

---

**From:** Emil Pena [mailto:emilio@emilpenainterestsinc.com]
**Sent:** Tuesday, May 01, 2018 2:55 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Emil Argentina June G20

Hi Brian, one, I spoke to Secretary Perry last week at a dinner and mentioned the upcoming G20 meeting in Bariloche, Argentina in June (13th-15th) for the Energy Meeting. Barbara Humpton, who the Secretary knows and now the new President and CEO of Siemens, was with me and we inquired about the business contingent accompanying him for this meeting. He steered me to you to ask how all that works.



AMERICAN OVERSIGHT

Two, I also mentioned that I'm very familiar with the Vaca Muerta (in the state of Neuquén) production zone, a four hour drive from Bariloche or ½ hour flight, and offered a tour. Mr. Perry was curious since he has never been to Argentina, and having him meet the in-country companies that produce and service the wells would be very cool, either before or after G20. He will receive an invitation from Neuquén offering the tour and transportation (flight). Let me know how to best align this. Thanks, Emil

Emil Peña
713-650-8004





AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 6:04 PM
**To:** Wilmot, Dan
**Subject:** FW: (b) (6)

(b) (6)

---

**From:** Mendelsohn, Kasia <Kasia.Mendelsohn@nnsa.doe.gov>
**Date:** Monday, Jun 04, 2018, 5:43 PM
**To:** Brian McCormack, Chief of Staff <ChiefofStaff@hq.doe.gov>
**Subject:** (b) (6)

(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Monday, June 04, 2018 8:03 PM
**To:** Lotto, Adrienne
**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 11:01 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

(b) (5)

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:55 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:54 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:52 PM
**To:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>



AMERICAN OVERSIGHT

**Subject:** RE: Detail to CI - (b) (6)

(b) (6)

---

**From:** Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 4:43 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** FW: Detail to CI - (b) (6)

Brian,

See below. I(b) (6)

Please let me know.

Thanks,
A

*Adrienne Lotto*

Chief of Staff for Office of Electricity (OE) and
Cybersecurity, Energy Security and Emergency Response (CESER)
1000 Independence Avenue, SW
Room 8H-033
Washington, DC 20585
Tel: (202) 586-1117

---

**From:** Brown Shute, Theresa
**Sent:** Monday, June 04, 2018 3:42 PM
**To:** Lee, Terri <Terri.Lee@hq.doe.gov>; Richardson, Arlene <Arlene.Richardson@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

Adrienne-

(b) (6)

Thank you,

Theresa

**Theresa Brown Shute**
*Workforce Development Team*
*Corporate Business Operations*
Office of Electricity (OE)
Room: 6E-092



AMERICAN OVERSIGHT

Office: 202-586-2841
Fax: 202-586-5860
theresa.brownshute@hq.doe.gov

---

**From:** Lee, Terri
**Sent:** Monday, June 04, 2018 3:38 PM
**To:** Brown Shute, Theresa <Theresa.BrownShute@hq.doe.gov>; Richardson, Arlene <Arlene.Richardson@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: Detail to CI - (b) (6)

Per Adrienne,

(b) (6)

Terri

---

**From:** Brown Shute, Theresa <Theresa.BrownShute@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 3:11 PM
**To:** Lee, Terri <Terri.Lee@hq.doe.gov>, Richardson, Arlene <Arlene.Richardson@hq.doe.gov>
**Subject:** FW: Detail to CI - (b) (6)

(b) (6)

Theresa

Theresa Brown Shute
Workforce Development Team
Corporate Business Operations
Office of Electricity (OE)
Room: 6E-092
Office: 202-586-2841
Fax: 202-586-5860
theresa.brownshute@hq.doe.gov

-----Original Message-----
From: Mendoza, Jennifer
Sent: Monday, June 04, 2018 3:06 PM
To: Brown Shute, Theresa <Theresa.BrownShute@hq.doe.gov>
Subject: Detail to CI -(b) (6)

Hi Theresa,

(b) (6)

Thanks!

Jennifer Mendoza
Office of Corporate Executive Management
Office of the Chief Human Capital Officer
U.S. Department of Energy



AMERICAN OVERSIGHT

Forrestal Building, 4E-084
Jennifer.Mendoza@hq.doe.gov | 202.586.7056



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 5:49 AM
**To:** Atkins, Elise
**Subject:** RE: Pre decisional-draft-call

I can do after 2 as well.

---

**From:** Atkins, Elise
**Sent:** Tuesday, June 05, 2018 8:26 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Pre decisional-draft-call

Still going straight to her voicemail.
If yordonas is back I'll work with her to set something up once I get Michelle.

---

**From:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Date:** Tuesday, Jun 05, 2018, 7:57 AM
**To:** Atkins, Elise <Elise.Atkins@hq.doe.gov>
**Subject:** RE: Pre decisional-draft-call

Want to see if she can do 9 am?

---

**From:** Atkins, Elise
**Sent:** Tuesday, June 05, 2018 7:05 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Pre decisional-draft-call

FYI Voicemail from and cell number for Michelle. Can I set up a time for us to call her today?
But her number for you nonetheless. I will send it to Sarah for the list also.

---

**From:** Cisco Unity Connection Messaging System <unityconnection@voice.doe.gov>
**Date:** Monday, Jun 04, 2018, 10:07 PM
**To:** elise.atkins@voice.doe.gov <elise.atkins@voice.doe.gov>
**Subject:** Voicemail from (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 6:21 AM
**To:** Rich Powell
**Subject:** RE: touching base

Thanks for the quick response. 4:30 works for me. Direct dial is (b) (6)

**From:** Rich Powell [mailto:powell@clearpath.org]
**Sent:** Tuesday, June 05, 2018 9:17 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Re: touching base

Hi Brian,

Good to hear from you. Of course. Any chance you're free at 4:30? Alternatively, between 3 and 4?

Best,
Rich

On Tue, Jun 5, 2018 at 9:12 AM McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Rich-
>
> Good morning. I wanted to see if you had time to talk this afternoon on a DOE project.
>
> Best,
> Brian



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 7:46 AM
**To:** Wallwork, Luke
**Subject:** RE: Lunch with Taylor Eighmy/Hurd memo

Ok. (b) (5)

---

**From:** Wallwork, Luke <Luke.Wallwork@hq.doe.gov>
**Date:** Tuesday, Jun 05, 2018, 10:40 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Lunch with Taylor Eighmy/Hurd memo

Fyi- (b) (5) But the memo is attached
info below:

**Specific Issue Congressman Hurd Would Like to Discuss:**

University of Texas San Antonio (UTSA) is interested in partnering with DOE CESER on the work UTSA is doing in the field of Cybersecurity, and building the National Security Collaboration Center (NSCC).

- Governmental agencies are calling for greater collaboration to address America's national security infrastructure protection. To encourage this, business and local government partners will have direct access to the technical expertise, highly trained students, and specialized facilities that make UTSA a premier cybersecurity program.
- The NSCC has strong partnerships with both the public and private sectors.
- Current federal cyber operations in San Antonio account for more than 7,000 military and civilian jobs.
- The Department is seeking to expand several of our cybersecurity focused training and education events, including CyberFire and our Cyber Defense Competition. The CIO's office and CESER office can connect with your office and UTSA to ensure they are aware of those opportunities.

**Luke Wallwork**
Personal Aide to the Secretary
(C): (b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 7:50 AM
**To:** Gerdes, Stan;Almstead, Deidre;Winberg, Steven;Garrish, Theodore
**Subject:** FW: Meeting with Sec. Perry

Scheduling - next week doesn't work. Any time this week?

---

**From:** Lowe, George <GLowe@aga.org>
**Date:** Tuesday, Jun 05, 2018, 10:21 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** Meeting with Sec. Perry

Brian –
Hope all is well with you. Dave McCurdy would like to meet with Secretary Perry prior to the World Gas Conference to talk about his speech. Could we get Dave into see him sometime in the next week?

Thanks
George

**George Lowe | Vice President, Governmental Affairs and Public Policy**
American Gas Association
400 N. Capitol St., NW | Washington, DC | 20001
P: 202-824-7020 | F: 202-824-9091 | glowe@aga.org

The American Gas Association represents more than 200 local energy companies committed to the safe and reliable delivery of clean natural gas to more than 70 million customers throughout the nation.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 11:41 AM
**To:** Burnison, Melissa;Dan Wilmot (Dan.Wilmot@hq.doe.gov);Gerdes, Stan;Deidre Almstead (Deidre.Almstead@hq.doe.gov);Bolton, Dwayne S.;Uddo, Joe
**Subject:** TN Trip

Melissa and Dwayne-

Can we do invites to the entire TN delegation for the event on Fr? To attend/participate but we're not adding anyone to the official program.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 11:56 AM
**To:** Joan Avagliano
**Subject:** RE: June 8

Jean- Looks like systems are go for a CNBC interview with IBM and Sec Perry.

---

**From:** Joan Avagliano [mailto:JAvagliano@dgi-nyc.com]
**Sent:** Tuesday, June 05, 2018 9:59 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8

I totally understand.

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Tuesday, June 05, 2018 9:49 AM
**To:** Joan Avagliano
**Subject:** RE: June 8

Will do. As soon as I do I'll let you know. Unfortunately, there are multiple layers of coordination and sign off.

---

**From:** Joan Avagliano <JAvagliano@dgi-nyc.com>
**Date:** Tuesday, Jun 05, 2018, 9:35 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8

Brian Good morning as you can imagine there is great anticipation at IBM so if you hear anything could you let me know? Appreciate all your help.
Thank you
Joan

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Monday, June 04, 2018 9:02 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Joan-

Our press office is now in touch with IBM and the Lab on this. Working on making this come together for Friday. Thanks for taking my call earlier. Will let you know when we have it nailed down.

Brian

---

**From:** Joan Avagliano <JAvagliano@dgi-nyc.com>
**Date:** Monday, Jun 04, 2018, 7:08 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8



AMERICAN OVERSIGHT

Thank you

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Monday, June 04, 2018 7:07 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Not yet. Still working on it.

---

**From:** Joan Avagliano <JAvagliano@dgi-nyc.com>
**Date:** Monday, Jun 04, 2018, 6:32 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: June 8

Brian. Presume no word yet but thought I would check in!
Thank you
Joan

---

**From:** McCormack, Brian [mailto:Brian.Mccormack@hq.doe.gov]
**Sent:** Monday, June 04, 2018 4:05 PM
**To:** Joan Avagliano
**Subject:** RE: June 8

Will do.

---

**From:** Joan Avagliano [mailto:JAvagliano@dgi-nyc.com]
**Sent:** Monday, June 04, 2018 4:09 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** June 8

Yes, Brian, Friday, June 8 would be the date for the joint announcement with Ms. Rometty and Secretary Perry / if you get clearance today would you let us know? or of course when you do hear?
Many thanks.
Joan



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 12:09 PM
**To:** Wetzel, Jonathan
**Cc:** Assafe, Yordanos
**Subject:** RE: Meeting Request: (b) (6) 6/5 (b) (6)

Jonathan – I have a conflict now. Can we work on rescheduling?

---

**From:** Wetzel, Jonathan
**Sent:** Monday, June 04, 2018 4:59 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Subject:** Meeting Request: (b) (6) 6/5 (b) (6)

Brian,

We would like you to meet with (b) (6) as a candidate for the (b) (6) tomorrow 6/5 at 4:30pm via WebEx.

(b) (6)

Her resume is attached.

Thanks,

**Jonathan Wetzel**
*Deputy White House Liaison*
*U.S. Department of Energy*
*(202) 586-5465*



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:24 PM
**To:** Hynes, Shaylyn
**Subject:** RE: talking points

For what?

-----Original Message-----
From: Hynes, Shaylyn
Sent: Tuesday, June 05, 2018 4:16 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: talking points
Importance: High

Send me the one pager/talking points you drafted for s1 for last week's meeting? I am putting together a quick sheet for tomorrow 's interviews (even though he can talk about this stuff in his sleep..)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:24 PM
**To:** Atkins, Elise
**Subject:** RE:

Yes.

-----Original Message-----
From: Atkins, Elise
Sent: Tuesday, June 05, 2018 4:17 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject:

Plan to walk down and listen in on your 4:30 call, as discussed.

Elise Atkins
Director of External Affairs
Office of Congressional and Intergovernmental Affairs
U.S. Department of Energy
202.586.6873 office
(b) (6) cell



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:26 PM
**To:** Habansky, Sarah
**Subject:** FW: FEMA remarks
**Attachments:** Hurricane Preparedness Talking Points - DOE for FEMA Brief_06062018_ NSC WHCO.docx

**Importance:** High

Please get with OE asap

---

**From:** Salvi, Mary E. EOP/WHO [mailto:(b) (6)
**Sent:** Tuesday, June 05, 2018 3:51 PM
**To:** McGinley, William J. EOP/WHO (b) (6) >; Staff Secretary (b) (6) ; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Mocarski, Ashley D. EOP/WHO (b) (6) >; McBride, Emily J. EOP/WHO (b) (6)
**Subject:** RE: FEMA remarks

DOE –

Attached are edits received to Sec. Perry's remarks tomorrow.

Please send back a clean version for our records as soon as able.

Thanks!

Mary Salvi
Assistant White House Staff Secretary
Desk: (202) 456-3251
Cell: (b) (6)
(b) (6)

---

**From:** McGinley, William J. EOP/WHO
**Sent:** Monday, June 4, 2018 5:44 PM
**To:** Staff Secretary (b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO (b) (6) >; McBride, Emily J. EOP/WHO <(b) (6)
**Subject:** Fwd: FEMA remarks

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

Begin forwarded message:

**From:** "Habansky, Sarah" <Sarah.Habansky@hq.doe.gov>
**Date:** June 4, 2018 at 5:43:07 PM EDT
**To:** "McCormack, Brian" <Brian.Mccormack@hq.doe.gov>, "McGinley, William J. EOP/WHO" <(b) (6) >
**Cc:** Staff Secretary <(b) (6) >, "Mocarski, Ashley D. EOP/WHO" <(b) (6) >, "McBride, Emily J. EOP/WHO" <(b) (6) >
**Subject: RE: FEMA remarks**

Please find attached DOE's talking points.

-----Original Message-----
From: McCormack, Brian
Sent: Monday, June 04, 2018 12:10 PM
To: McGinley, William J. EOP/WHO <(b) (6) >
Cc: Staff Secretary (b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
Subject: RE: FEMA remarks

Yes, we'll have them over.

-----Original Message-----
From: McGinley, William J. EOP/WHO [mailto:(b) (6)
Sent: Monday, June 04, 2018 11:46 AM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Staff Secretary <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >
Subject: FEMA remarks

Brian,

Hope you had a good weekend. Wanted to confirm that staff sec and Cab Affairs will be receiving the secretary's draft FEMA remarks for vetting this afternoon.

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:26 PM
**To:** Habansky, Sarah
**Subject:** FW: FOR REVIEW: FEMA Gov. Scott TPs/Remarks
**Attachments:** DRAFT_WH Hurricane Season Briefing.docx

fyi

---

**From:** Staff Secretary [mailto:(b) (6)
**Sent:** Tuesday, June 05, 2018 3:27 PM
**To:** Staff Secretary (b) (6) >; Sanders, Sarah H. EOP/WHO (b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO (b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO (b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO <(b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec (b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO (b) (6) >; Stepien, William EOP/WHO (b) (6) >; Bobb, Christina <christina.bobb@hq.dhs.gov>; Comstock, Earl (Federal) <EComstock@doc.gov>; Williams, Allaire (Federal) <AWilliams2@doc.gov>; Hallock.mohler@sd.mil; Ann.Agnew@hhs.gov; Hughes, Andrew <Andrew.Hughes@hud.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Williams, Meredith <meredith.williams@hq.dhs.gov>
**Subject:** RE: FOR REVIEW: FEMA Gov. Scott TPs/Remarks

Attached is the final version of Gov. Scott's remarks. Please flag any concerns by 5 PM.

---

**From:** Staff Secretary
**Sent:** Monday, June 4, 2018 9:19 PM
**To:** Sanders, Sarah H. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Conway, Kellyanne E. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Walters, Lindsay E. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) Goyer, Jim L. EOP/WHO <(b) (6) >; DL NSC PaperDeputies <(b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) Donaldson, Annie M. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP <(b) (6) >; Gabriel, Robert EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Miller, Adelaide E. EOP/WHO (b) (6) >; Symonds, Tori Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; 'Bobb, Christina' <christina.bobb@hq.dhs.gov>; 'Comstock, Earl (Federal)' <EComstock@doc.gov>; 'Williams, Allaire (Federal)' <AWilliams2@doc.gov>; 'Hallock.mohler@sd.mil' <Hallock.mohler@sd.mil>; 'Ann.Agnew@hhs.gov' <Ann.Agnew@hhs.gov>; 'Hughes, Andrew' <Andrew.Hughes@hud.gov>; 'Brian.Mccormack@hq.doe.gov' <Brian.Mccormack@hq.doe.gov>; 'Williams, Meredith'



AMERICAN OVERSIGHT

<(b) (6) >
**Cc:** Staff Secretary <(b) (6) >
**Subject:** FOR REVIEW: FEMA Gov. Scott TPs/Remarks

Attached are draft TPs for Gov. Scott (FL) to use during Wednesday's event at FEMA.

Please review and provide edits – for **red flag/error only** – by **10 AM tomorrow, 6/5**.

Thank you,

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:27 PM
**To:** Dan Wilmot (Dan.Wilmot@hq.doe.gov)
**Subject:** FW: EMP

Let's discuss.

-----Original Message-----
From: Black, Charlie [mailto:Charlie.Black@prime-policy.com]
Sent: Tuesday, June 05, 2018 3:15 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: EMP

I noticed the Secretary's comments about the danger to the grid. We know that one of these is EMP. We believe that Tom King at Oak Ridge is willing to undertake the test that Eric requests. He just needs to hear from you, Dan, Devon, or someone at hq to proceed. Thanks a lot.
Sent from my iPad

---

The information, and any attachments contained in this email may contain confidential and/or privileged information and is intended solely for the use of the intended named recipient(s). Any disclosure or dissemination in whatever form, by another other than the intended recipient is strictly prohibited. If you have received this transmission in error, please contact the sender and destroy this message and any attachments. Thank you.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:28 PM
**To:** Smith, Wayne D;Wilmot, Dan
**Subject:** (b) (5)

Please do

---

**From:** Smith, Wayne D
**Sent:** Tuesday, June 05, 2018 3:00 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Subject:** FW: FOR REVIEW: Peter Navarro Op-ed Trade Imbalances
**Importance:** High

(b) (5)

V/r,
Wayne

---

**From:** Staff Secretary [mailto:(b) (6) ]
**Sent:** Tuesday, June 05, 2018 2:06 PM
**To:** Eissenstat, Everett H. EOP/WHO (b) (6) Dolbow, Matthew S. EOP/NSC <(b) (6) >; Haarsager, Mathew P. EOP/NSC <(b) (6) >; Donaldson, Annie M. EOP/WHO <(b) (6) >; Ellis, Michael J. EOP/WHO <(b) (6) >; Eisenberg, John A. EOP/NSC (b) (6) >; Knight, Shahira E. EOP/WHO (b) (6) >; Chalkey, Richard J. EOP/WHO <(b) (6) >; DeStefano, John J. EOP/WHO <(b) (6) >; Stepien, William EOP/WHO <(b) (6) >; Goyer, Jim L. EOP/WHO <(b) (6) >; Jack, Brian T. EOP/WHO <(b) (6) >; DL WHO LEG AFFAIRS Staff Sec <(b) (6) Greenwood, Daniel Q. EOP/WHO <(b) (6) >; Hoelscher, Douglas L. EOP/WHO <(b) (6) >; McGinley, William J. EOP/WHO <(b) (6) >; Pinkos, Stephen M. EOP/OVP (b) (6) >; Radford, Julie T. EOP/WHO <(b) (6) >; Baitel, Rachael EOP/WHO <(b) (6) >; Bremberg, Andrew P. EOP/WHO <(b) (6) >; Leggitt, Lance B. EOP/WHO <(b) (6) >; Sherk, James B. EOP/WHO <(b) (6) >; EComstock@doc.gov; DL NSC PaperDeputies (b) (6) >; DL NSC WWD (b) (6) >; Sanders, Sarah H. EOP/WHO (b) (6) >; Shah, Raj S. EOP/WHO <(b) (6) >; Gidley, Hogan H. EOP/WHO (b) (6) Walters, Lindsay E. EOP/WHO <(b) (6) >; Schlapp, Mercedes V. EOP/WHO <(b) (6) >; Ditto, Jessica E. EOP/WHO <(b) (6) >; Nasim, Laura F. EOP/WHO <(b) (6) >; Kennedy, Adam R. EOP/WHO <(b) (6) >; Nordquist, DJ D. EOP/CEA <(b) (6) >; Cobaugh, CC M. EOP/USTR <(b) (6) >; Greer, Jamieson L. EOP/USTR <(b) (6) >; Katherine.Tyrrell@treasury.gov; Ryan.Brady@treasury.gov; Davis, May M. EOP/WHO <(b) (6) >; Joseloff, Benjamin G. EOP/NSC <(b) (6) >; Hallock.mohler@sd.mil; Kratsios, Michael J. EOP/OSTP



AMERICAN OVERSIGHT

<|(b) (6) >; Brown, Clinton S <BrownCS@state.gov>; Smith, Wayne D <Wayne.Smith@hq.doe.gov>; Whitaker, Matthew (OAG) <Matthew.Whitaker@usdoj.gov>; Yeager, Demi (OAG) <Demi.Yeager@usdoj.gov>; Miller, Julie L. EOP/OMB <Julie_Miller@omb.eop.gov>; Robbins, Amanda H. EOP/OMB <Amanda.H.Robbins@omb.eop.gov>; Bigley, Mark C. EOP/OMB <Mark.C.Bigley@omb.eop.gov>; Miller, Stephen EOP/WHO <|(b) (6) Gabriel, Robert EOP/WHO <|(b) (6) >
**Cc:** Staff Secretary <|(b) (6) >; Policy Coordinator <|(b) (6) >
**Subject:** FOR REVIEW: Peter Navarro Op-ed Trade Imbalances

(b) (5)

Please review and send edits/comments by **9 PM tonight, 6/5**. Affirmative clearance requested from **Commerce, Treasury, USTR, NEC, State, and WHCO**.

STAFF SEC



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 1:29 PM
**To:** Kinney, Sara
**Subject:** RE: time to visit?

I'll find a time tomorrow. (b) (6)

-----Original Message-----
From: Kinney, Sara
Sent: Tuesday, June 05, 2018 4:28 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: RE: time to visit?

(b) (6) so 6pm would be pushing it. Happy to be late, but if tomorrow there is some time, that would make it all work.

-----Original Message-----
From: McCormack, Brian
Sent: Tuesday, June 05, 2018 4:27 PM
To: Kinney, Sara <Sara.Kinney@hq.doe.gov>
Subject: RE: time to visit?

Sure. How are you at 6 pm today? Or we can do tomorrow.

-----Original Message-----
From: Kinney, Sara
Sent: Tuesday, June 05, 2018 3:21 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Subject: time to visit?

As a follow up to our impromptu convo last week, do you have a couple of minutes for me in the next day or so?

SMK

Sara Marie Kinney
Deputy Press Secretary
Department of Energy
202-586-7058 (o)
(b) (6) (c)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:15 PM
**To:** Jaworowski, Suzanne;Assafe, Yordanos
**Cc:** Brian McCormack, Chief of Staff
**Subject:** RE: Meeting tomorrow at 9:30 am

Suzie - Is Ed not available?

---

**From:** Jaworowski, Suzanne
**Sent:** Tuesday, June 05, 2018 5:13 PM
**To:** Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
**Cc:** Brian McCormack, Chief of Staff <ChiefofStaff@hq.doe.gov>
**Subject:** Meeting tomorrow at 9:30 am

Hello Yordanos,

My name is Suzie Jaworowski from the office of nuclear energy.

I am scheduled to participate in a meeting at 9:30 tomorrow morning with Brian McCormack and Bruce Fogerty.

I was not able to change my travel plans to be in Washington in the morning. Could you please provide a call in number for me?

Thank you.

Suzie

P.S. if you need to reach me my cell phone is
(b) (6)



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:17 PM
**To:** Atkins, Elise
**Cc:** Assafe, Yordanos
**Subject:** RE: can you move tomorrow with Michelle to anytime between 12 and 3:30?

thanks

-----Original Message-----
From: Atkins, Elise
Sent: Tuesday, June 05, 2018 6:11 PM
To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
Subject: RE: can you move tomorrow with Michelle to anytime between 12 and 3:30?

We'll get is rescheduled.

-----Original Message-----
From: McCormack, Brian
Sent: Tuesday, June 05, 2018 6:06 PM
To: Atkins, Elise <Elise.Atkins@hq.doe.gov>
Cc: Assafe, Yordanos <Yordanos.Assafe@hq.doe.gov>
Subject: can you move tomorrow with Michelle to anytime between 12 and 3:30?



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:18 PM
**To:** Uddo, Joe
**Subject:** ever interview?
**Attachments:** (b) (6) pdf



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 3:19 PM
**To:** Burnison, Melissa;Varnasidis, Sophia
**Cc:** Bolton, Dwayne S.;McCurdy, Jake;Menezes, Mark
**Subject:** RE: Hill Followup on Grid Project

I'm in

-----Original Message-----
From: Burnison, Melissa
Sent: Tuesday, June 05, 2018 5:25 PM
To: Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>; McCurdy, Jake <Jake.Mccurdy@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
Subject: RE: Hill Followup on Grid Project

That works - I'd like to do it jointly but if Brian doesn't have the window, we can bring him up to speed separately -- thanks all

Melissa F. Burnison
Assistant Secretary
Congressional and Intergovernmental Affairs
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-5450
(b) (6) cell

-----Original Message-----
From: Varnasidis, Sophia
Sent: Tuesday, June 05, 2018 5:02 PM
To: Burnison, Melissa <Melissa.Burnison@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>; McCurdy, Jake <Jake.Mccurdy@hq.doe.gov>; Menezes, Mark <Mark.Menezes@hq.doe.gov>
Subject: RE: Hill Followup on Grid Project

S3 is unavailable this evening. His day tomorrow is jammed other than a small window from 10-10:30 if you want to meet then.

-----Original Message-----
From: Burnison, Melissa
Sent: Tuesday, June 05, 2018 4:53 PM
To: Menezes, Mark <Mark.Menezes@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
Cc: Bolton, Dwayne S. <Dwayne.Bolton@hq.doe.gov>; McCurdy, Jake <Jake.Mccurdy@hq.doe.gov>; Varnasidis, Sophia <Sophia.Varnasidis@hq.doe.gov>
Subject: Hill Followup on Grid Project



AMERICAN OVERSIGHT

Dwayne and I would like to find a few minutes with you both on the Hill outreach on the grid project to have a conversation. Do you have any time after 5pm where we could grab you both?

Thank you

Melissa F. Burnison
Assistant Secretary
Congressional and Intergovernmental Affairs
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585
(202) 586-5450
(b) (6) :ell



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 4:15 PM
**To:** Hynes, Shaylyn;Fitzsimmons, Alexander;Szymanski, Jessica;Kinney, Sara
**Subject:** RE: Solar manufacturing prize press release

Good to go

---

**From:** Hynes, Shaylyn
**Sent:** Tuesday, June 05, 2018 6:47 AM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Szymanski, Jessica <Jessica.Szymanski@hq.doe.gov>; Kinney, Sara <Sara.Kinney@hq.doe.gov>
**Subject:** RE: Solar manufacturing prize press release

Ok thanks. We will hold until we hear from you

---

**From:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Date:** Monday, Jun 04, 2018, 9:47 PM
**To:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Solar manufacturing prize press release

No, we need to hold for now.

---

**From:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Date:** Monday, Jun 04, 2018, 8:29 PM
**To:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Subject:** RE: Solar manufacturing prize press release

Thanks. Is this clear to go?

---

**From:** Fitzsimmons, Alexander <Alexander.Fitzsimmons@ee.doe.gov>
**Date:** Monday, Jun 04, 2018, 9:15 AM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Hynes, Shaylyn <Shaylyn.Hynes@hq.doe.gov>
**Subject:** Solar manufacturing prize press release

Brian,

Per our discussion, attached is the solar manufacturing prize press release.

-Alex



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 4:19 PM
**To:** Habansky, Sarah;Wilmot, Dan
**Cc:** Moore, Janelle
**Subject:** RE: FEMA remarks

yes

---

**From:** Habansky, Sarah
**Sent:** Tuesday, June 05, 2018 6:28 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** RE: FEMA remarks

(b) (5)

---

**From:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>
**Date:** Tuesday, Jun 05, 2018, 6:25 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>, McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** RE: FEMA remarks

(b) (5)

---

**From:** Habansky, Sarah
**Sent:** Tuesday, June 05, 2018 4:04 PM
**To:** Wilmot, Dan <Dan.Wilmot@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Moore, Janelle <Janelle.Moore@hq.doe.gov>
**Subject:** FW: FEMA remarks

Final remarks with WH input -- let me know if you have any issues



AMERICAN OVERSIGHT

**From:** Hoffman, Patricia
**Sent:** Tuesday, June 05, 2018 4:03 PM
**To:** Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** RE: FEMA remarks

(b) (5)

*Patricia Hoffman*
Principal Deputy Assistant Secretary
Office of Electricity
(202) 586-6074 (OE phone)
(b) (6) (cell)

---

**From:** Habansky, Sarah
**Sent:** Tuesday, June 05, 2018 3:53 PM
**To:** Hoffman, Patricia <Pat.Hoffman@hq.doe.gov>; Streit, Devon (Lisa) HQ <Devon.Streit@Hq.Doe.Gov>
**Cc:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>; Lotto, Adrienne <Adrienne.Lotto@hq.doe.gov>
**Subject:** FW: FEMA remarks
**Importance:** High

Can you guys look over the edits and send back to me?

---

**From:** Salvi, Mary E. EOP/WHO [mailto:(b) (6) ]
**Sent:** Tuesday, June 05, 2018 3:51 PM
**To:** McGinley, William J. EOP/WHO <(b) (6) >; Staff Secretary <(b) (6) >; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>; McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) McBride, Emily J. EOP/WHO <(b) (6) >
**Subject:** RE: FEMA remarks

DOE –

Attached are edits received to Sec. Perry's remarks tomorrow.

Please send back a clean version for our records as soon as able.

Thanks!

Mary Salvi
Assistant White House Staff Secretary
Desk: (202) 456-3251
Cell: (b) (6)
(b) (6)



AMERICAN OVERSIGHT

**From:** McGinley, William J. EOP/WHO
**Sent:** Monday, June 4, 2018 5:44 PM
**To:** Staff Secretary <(b) (6) >
**Cc:** Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >
**Subject:** Fwd: FEMA remarks

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.

Begin forwarded message:

> **From:** "Habansky, Sarah" <Sarah.Habansky@hq.doe.gov>
> **Date:** June 4, 2018 at 5:43:07 PM EDT
> **To:** "McCormack, Brian" <Brian.Mccormack@hq.doe.gov>, "McGinley, William J. EOP/WHO" <(b) (6) >
> **Cc:** Staff Secretary <(b) (6) >, "Mocarski, Ashley D. EOP/WHO" <(b) (6) >, "McBride, Emily J. EOP/WHO" <(b) (6) >
> **Subject: RE: FEMA remarks**
>
> Please find attached DOE's talking points.
>
> -----Original Message-----
> From: McCormack, Brian
> Sent: Monday, June 04, 2018 12:10 PM
> To: McGinley, William J. EOP/WHO (b) (6) >
> Cc: Staff Secretary (b) (6) ; Mocarski, Ashley D. EOP/WHO (b) (6) >; McBride, Emily J. EOP/WHO (b) (6) ; Habansky, Sarah <Sarah.Habansky@hq.doe.gov>
> Subject: RE: FEMA remarks
>
> Yes, we'll have them over.
>
> -----Original Message-----
> From: McGinley, William J. EOP/WHO [mailto:(b) (6) ]
> Sent: Monday, June 04, 2018 11:46 AM
> To: McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> Cc: Staff Secretary <(b) (6) >; Mocarski, Ashley D. EOP/WHO <(b) (6) >; McBride, Emily J. EOP/WHO <(b) (6) >
> Subject: FEMA remarks
>
> Brian,
>
> Hope you had a good weekend. Wanted to confirm that staff sec and Cab Affairs will be



AMERICAN OVERSIGHT

receiving the secretary's draft FEMA remarks for vetting this afternoon.

Please let us know.

Thanks,
Bill

William McGinley
Cabinet Secretary
The White House

Sent from my iPhone. Please forgive typos.



AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

**From:** McCormack, Brian
**Sent:** Tuesday, June 05, 2018 5:00 PM
**To:** Trae Stephens
**Subject:** RE: Anduril Update

Trae- what's the best number to reach you at? Thanks.

---

**From:** Trae Stephens <trae@anduril.com>
**Date:** Monday, Jun 04, 2018, 5:16 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>, Palmer Luckey <palmer@anduril.com>, Almstead, Deidre <Deidre.Almstead@hq.doe.gov>, Gerdes, Stan <Stan.Gerdes@hq.doe.gov>
**Subject:** Re: Anduril Update

We could *probably* make that work, but have a couple of conflicts due to (b) (4) that week. Would it be possible to get an appointment early the next week?

Trae'

On Mon, Jun 4, 2018 at 1:17 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

> Trae – how is June 21 at 4 pm?
>
> **From:** Trae Stephens [mailto:trae@anduril.com]
> **Sent:** Friday, June 01, 2018 2:53 PM
>
> **To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
> **Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
> **Subject:** Re: Anduril Update
>
> At the risk of becoming super annoying, just thought I would reach back out! Our plans for a June trip are starting to move forward and I'd like to prioritize this meeting if we can.
>
> Thanks!
>
> Trae'



AMERICAN OVERSIGHT

On Thu, May 24, 2018 at 1:48 PM, Trae Stephens <trae@anduril.com> wrote:

Awesome - thanks!

Trae'

On Thu, May 24, 2018 at 1:46 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

I have the Scheduling Office looking at that. Back in touch soon.

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:35 PM

**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>
**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

No worries!

Ideally, this would be either the week of the 18th or the 25th. We haven't locked in dates yet. What would work best for the Secretary? You guys can get first dibs! :)

Trae'

On Thu, May 24, 2018 at 1:28 PM, McCormack, Brian <Brian.Mccormack@hq.doe.gov> wrote:

Trae- Thanks for the note and sorry for not responding earlier. What days will you bi in DC?

**From:** Trae Stephens [mailto:trae@anduril.com]
**Sent:** Thursday, May 24, 2018 4:23 PM
**To:** McCormack, Brian <Brian.Mccormack@hq.doe.gov>



AMERICAN OVERSIGHT

**Cc:** Matt Steckman <msteckman@anduril.com>; Palmer Luckey <palmer@anduril.com>
**Subject:** Re: Anduril Update

Brian: Thought I'd ping again here to resurface. We would love to chat!

Thanks,

Trae'

On Sat, May 12, 2018 at 10:58 AM, Trae Stephens <trae@anduril.com> wrote:

> Brian: I hope this finds you doing well! (b) (6) suggested that I reach out to you with regards to the project (b) (4) (copied) and I have been working on over the past year. We'd love to come in and chat with you and the Secretary about critical infrastructure protection using the technology we are currently deploying (b) (4)
>
> Here's a two-minute video summarizing the work.
>
> URL:(b) (6), (b) (4)
>
> Password:(b) (6), (b) (4)
>
> We will likely be back in DC in early/mid June and would be happy to come by and even do a live demonstration (connecting back to our (b) (4) ).
>
> Let me know what you think!
>
> Thanks,
>
> Trae'



AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

**Rodriguez, Susan (CONTR)**

| | |
|---|---|
| **Subject:** | Meeting: Bruce Fogerty, Richard and Elizabeth Muller |
| **Location:** | Brian McCormack's Office |
| **Start:** | Wed 6/6/2018 6:30 AM |
| **End:** | Wed 6/6/2018 7:00 AM |
| **Show Time As:** | Tentative |
| ***Recurrence:*** | (none) |
| **Meeting Status:** | Not yet responded |
| **Organizer:** | McCormack, Brian |
| **Required Attendees:** | Bruce Fogerty; Jaworowski, Suzanne |



AMERICAN OVERSIGHT

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

JUL 12 2019

Re: FOIA No. FY18-113
Sixth Response Letter

**VIA EMAIL AND REGULAR MAIL**

Mohammad Aslami
Union of Concerned Scientists
1825 K St., NW
Suite 800
Washington, DC 20006-1232
maslami@ucsusa.org

Dear Mr. Mohammad Aslami:

This is a sixth rolling response to your request, filed August 23, 2018, for information pursuant to the Freedom of Information Act (FOIA),[1] and the Federal Energy Regulatory Commission's (Commission) FOIA regulations, specifically 18 C.F.R. § 388.108 (2018). Specifically, you requested:

1. *All emails, email attachments, or calendar invitations/entries – from March 1, 2018 to the present – sent by or received from Travis Fisher containing certain terms.*[2]

2. *All emails, email attachments, or calendar invitations/entries – from January 1, 2018 to present – sent by or received from Anthony Pugliese containing certain terms.*[3]

On October 11, 2018, the Commission issued its first rolling response releasing 30 documents and withholding in their entirety 147 documents. On December 20, 2018, the Commission issued its second rolling response releasing an additional 30 documents and withholding in their entirety 240 documents. On January 23, 2019, the Commission issued

---

[1] 5 U.S.C. § 552(a) *as amended by* the FOIA Improvement Act of 2016, Pub. L. No. 114-185, 130 Stat. 538 (2017).

[2] Terms include: Coal, Nuclear, Resiliency, Critical Infrastructure, Reliability, White House, Federal Power Act, FPA, Defense Production Act, DPA, DOE.hq.gov, EOP.gov, Perry, 202(c), McNamee.

[3] Same terms as Footnote 2.

AMERICAN OVERSIGHT

its third rolling response releasing an additional 40 documents and not withholding any documents.

On February 14, 2019, you agreed to narrow the search going forward to alter the start date for Anthony Pugliese's emails to March 1, 2018 and to exclude the terms "Federal Power Act," "FPA," "Perry," and "White House" from the search entirely. Based on these new terms, on April 5, 2019, the Commission issued its fourth rolling response releasing 67 documents and withholding in their entirety 88 documents. On May 15, 2019, the Commission issued its fifth rolling response, releasing 30 documents and withholding in their entirety 147 documents. These responses also informed you that there are potentially numerous additional responsive documents that would be released on a rolling basis.

The Commission has made a determination as to 285 additional documents. Of the 285 documents, 55 are being released in whole or in part, and 230 documents are being withheld in their entirety. With the exception of one document, which is being withheld under FOIA Exemption 6, all non-disclosed portions are being withheld under FOIA Exemption 5.[4] FOIA Exemption 5 is being invoked to protect FERC Officials' internal views, comments, preliminary thoughts, and analysis of various matters before the Commission.[5] FOIA Exemption 6 is being invoked to protect a personnel matter document.

Given the high volume of information requested and the amount of Commission staff time required to process any responsive documents under the revised narrowed search for documents, we will continue to process the remaining documents on a rolling basis.[6] We will endeavor to provide you with another determination within twenty business days or sooner, and complete final processing as soon as possible.

---

[4] *See* 5 U.S.C. § 552(b)(5) (protecting inter-agency or intra-agency memoranda); 5 U.S.C. § 552(b)(6) (protecting personnel . . . and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy).

[5] As a courtesy, enclosed is an index of all documents being withheld in full under this response.

[6] *See S. Yuba River Citizens League v. Nat'l Marine Fisheries Serv.*, No. Civ. S-06-2845, 2008 U.S. Dist. LEXIS 107177, 47 (E.D. Cal. June 20, 2008) (supporting the practice of releasing documents on a rolling basis); *Hinton v. Fed. Bureau of Investigations*, 527 F. Supp. 223, 225 (E.D. Penn. 1981) (noting that rolling responses preserve the government's right to carefully review material while promoting FOIA's disclosure goals); *see also* U.S. Dep't of Justice, *FOIA Post*, "OIP Guidance: The importance of Good Communication with FOIA requesters," (posted 2010) (stating agencies should provide rolling responses for requests involving a voluminous material).

AMERICAN OVERSIGHT

Ordinarily, any appeal from a FOIA determination must be filed within 90 days of the date of issuance as provided by the Freedom of Information Act and 18 C.F.R. § 388.110(a)(1) of the Commission's regulations. However, because your request is being processed on a rolling basis, the Commission will hold your appeal rights in abeyance pending a final determination. This will allow you to file a single appeal at the conclusion of our processing of your request.[7]

If you decide to appeal, this appeal must be in writing, addressed to James P. Danly, General Counsel, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, D.C. 20426, and clearly marked "Freedom of Information Act Appeal." Please include a copy to Charles A. Beamon, Associate General Counsel, General and Administrative Law, at the same address.

You have the right to seek dispute resolution services from the FOIA Public Liaison of the agency or the Office of Government Information Services (OGIS). Using OGIS services does not affect your right to pursue your appeal. You may contact OGIS by email at ogis@nara.gov; telephone at (877) 684-6448; facsimile at (301) 837-0348; or by mail to the Office of Government Information Services, National Archives and Records Administration, Room 2510, 8601 Adelphi Road, College Park, MD 20740-6001.

Sincerely,

Leonard M. Tao
Director
Office of External Affairs

Enclosures (55)

[7] In lieu of filing a FOIA appeal with the Commission, on November 15, 2018, you filed a Complaint in the United States District Court of Columbia, designated as Civil Action No. 18-cv-02615-DLF.

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| Document | Date | Subject | Exemption |
|---|---|---|---|
| | | | |
| Additional Memos for your team | 4/6/2018 | Internal emails and draft memorandum | Exemption 5 |
| Advance materials for program offices meeting | 4/6/2018 | Internal emails discussing Commission Meeting Topics | Exemption 5 |
| Advanced Items for Friday Package | 4/12/2018 | Internal Emails discussing Commission Topics | Exemption 5 |
| Any Other Discussion Items | 4/6/2018 | Internal emails discussing Office meetings | Exemption 5 |
| Audit Status Reports - [redacted] Audits | 4/6/2018 | Internal emails discussing draft audit reports | Exemption 5 |
| Chairman Testimony for [redacted] | 4/12/2018 | Internal memo congressional testimony | Exemption 5 |
| Chairman"s Draft Testimony for [redacted] | 4/5/2018 | Internal memo congressional testimony | Exemption 5 |
| Chairman"s Written Testimony and Summary [redacted] Hearing | 4/13/2018 | Chairman final written testimony before the [redacted] Hearing | Exemption 5 |
| Congressman [redacted] | 4/13/2018 | Draft email discussing call to Congressman [redacted] | Exemption 5 |
| [redacted] Briefings Today | 4/10/2018 | Classified Briefings discussions | Exemption 5 |
| Discussion Agenda (37) | 4/9/2018 | email discussion items for the Commission agenda | Exemption 5 |
| Draft Audit Report on [redacted] | 4/11/2018 | Draft Audit Report | Exemption 5 |
| Draft Questions for Chairman McIntyre | 4/10/2018 | Internal Draft questions for the Chairman at t[redacted] | Exemption 5 |
| EEI Legal Committee April 12th Event: Draft Remarks | 4/9/2018 | Draft remarks for EEI Committee | Exemption 5 |
| For Review: [redacted] | 4/6/2018 | Draft Commission Orders | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| [redacted] | | | |
| For Review: Supplemental Notice for [redacted] Technical Conference( [redacted] | 4/6/2018 | Notice for Technical Conference [redacted] | Exemption 5 |
| Fully Executed Contract for your Files | 4/5/2018 | Internal deliberations | Exemption 5 |
| FW: Advisory Committee for [redacted] | 4/2/2018 | Intra-agency communication discussing participation on advisory panels. | Exemption 5 |
| Any Items for Friday Package_(1) | 4/13/2018 | Internal emails discussing the Commission agenda | Exemption 5 |
| FW: [redacted] Materials for the Chairman"s review | 4/4/2018 | Internal email discussing [redacted] | Exemption 5 |
| FW: DOE-EPRI Resilience Workshop Invitation - June 14, 2018 | 4/10/2018 | Internal emails discussing invitation to DOE workshop | Exemption 5 |
| FW: DOE-EPRI Resilience Workshop Invitation - June 14, 2018 | 4/10/2018 | Internal emails discussing Invitation to DOE workshop | Exemption 5 |
| FW: Draft Questions for Chairman McIntyre | 4/11/2018 | Draft suggested questions for the Chairman | Exemption 5 |
| FW: FERC-SNL-DOE Dialog [redacted] | 4/12/2018 | Intra-agency communication discussing ongoing projects | Exemption 5 |
| Fw: [redacted] | 4/6/2018 | Internal email an memo discussing an ongoing investigation. | Exemption 5 |
| FW: Invitation to RFF-R Street Grid Resilience Workshop | 4/11/2018 | Invitation to grid resilience workshop and discussing specifics in preparation for the conference. | Exemption 5 |
| Invitation: ESCC Meeting on May 7 | 4/12/2018 | Invitation to ECC Meeting. | Exemption 5 |
| FW: [redacted] text | 4/9/2018 | Draft [redacted] suggested language. | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| FW: [redacted] for [redacted] Proceeding | 4/5/2018 | Internal email discussing ongoing proceeding | Exemption 5 |
| FW: [redacted] Storm Outages | 4/10/2019 | Internal email discussing ongoing proceeding | Exemption 5 |
| FW: OEP item for Monday meeting | 4/13/2018 | Internal [redacted] [redacted] Options Memo | Exemption 5 |
| FW: Report of the FERC [redacted] | 4/5/2018 | Internal emails between Commissioners Staff | Exemption 5 |
| FW: Revisions to [redacted] | 4/12/2018 | Internal discussions concerning Commission order revisions | Exemption 6 |
| FW: [redacted] Meeting Agenda and materials for all | 4/10/2018 | Internal email exchanging meeting materials | Exemption 5 |
| FYI -- Report of the [redacted] | 4/5/2018 | Internal email discussing ongoing task force | Exemption 5 |
| FYI - Supplemental Notice for [redacted] Technical Conference [redacted] | 4/10/2018 | Internal draft Supplemental Notice | Exemption 5 |
| Gas Pipeline [redacted] Update for FERC | 4/6/2018 | Internal emails discussing ongoing matters | Exemption 5 |
| Guidance on [redacted] | 4/4/2018 | Internal emails discussing topics for the Commissioner at conference. | Exemption 5 |
| Hearing Summary Report | 4/13/2018 | Documents exchanged in preparation for hearing | Exemption 5 |
| invitation to speak on resilience | 4/11/2018 | Internal emails discussing Commission Meeting Topics | Exemption 5 |
| [redacted] edits | 4/10/2018 | Testimony preparation email exchange | Exemption 5 |
| Monday OEP Discussion Item | 4/6/2018 | Internal email regarding Commission meeting topics | Exemption 5 |
| [redacted] Draft Order [redacted] | 4/9/2018 | Internal emails and draft memorandum | Exemption 5 |
| [redacted] Reply on the [redacted] Issue | 4/5/2018 | Internal emails discussing ongoing matters. | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| [redacted] | 4/3/2018 | Internal emails between OGC discussing meeting attendance | Exemption 5 |
| RE:_(24) | 4/10/2018 | Internal email between OGC discussing ongoing matters | Exemption 5 |
| RE: Advance Materials for [redacted] Meetings | 4/3/2018 | Materials for upcoming Commission meeting | Exemption 5 |
| RE: Any Items for Friday Package? (10) | 4/13/2018 | Internal email discussing upcoming Commission meeting | Exemption 5 |
| RE: Any Items for Friday Package?(11) | 4/6/2018 | Internal email discussing upcoming Commission meeting | Exemption 5 |
| RE: Any Items for Friday Package? (13) | 4/5/2018 | Internal email discussing upcoming Commission meeting | Exemption 5 |
| RE: [redacted] staff analysis on [redacted] | 4/5/2018 | Internal emails discussing ongoing maters | Exemption 5 |
| RE: DOE Resiliency Study - [redacted] | 4/2/2018 | Internal emails discussing ongoing matters. | Exemption 5 |
| RE: [redacted] Resilience Workshop Invitation - June 14, 2018 | 4/10/2018 | Internal email re DOE workshop | Exemption 5 |
| RE: Draft Questions for Chairman McIntyre | 4/11/2018 | Internal draft memo and discussions | Exemption 5 |
| RE: EEI Legal Committee April 12th Event: Draft Remarks | 4/9/2018 | Internal email between OGC | Exemption 5 |
| RE: EEI Legal Committee April 12th Event: Draft Remarks | 4/10/2018 | Internal email between OGC | Exemption 5 |
| RE: For Review: [redacted] Technical Conference( [redacted] | 4/9/2018 | Draft memorandum | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| RE: For Review: Supplemental Notice for [redacted] | 4/10/2018 | Draft memorandum | Exemption 5 |
| RE: Heads up - [redacted] | 4/5/2018 | Internal emails discussing ongoing matters | Exemption 5 |
| RE: Heads up - [redacted] | 4/5/2018 | Internal emails discussing ongoing matters | Exemption 5 |
| Re: Heads up - [redacted] | 4/6/2018 | Internal emails discussing ongoing matters | Exemption 5 |
| RE: Invitation to [redacted] Workshop | 4/11/2018 | Internal emails discussing ongoing matters | Exemption 5 |
| RE: invitation to speak on resilience | 4/11/2018 | Discussions on speaking topics | Exemption 5 |
| RE: Invitation: EIS Summit IX London | 4/4/2018 | Internal emails and invitation | Exemption 5 |
| Re: Invitation: ESCC Meeting on May 7 | 4/12/2018 | invitation to ESCC meeting and topics discussed | Exemption 5 |
| RE: next steps | 4/2/2018 | Internal emails and deliberations | Exemption 5 |
| RE: [redacted] Draft Order [redacted] | 4/12/2018 | Email discussing Commission Order | Exemption 5 |
| RE: [redacted] Incident | 4/5/2018 | Internal emails discussing ongoing matters | Exemption 5 |
| RE: Revised [redacted] DRAFT [redacted] Final Rule for Chairman Review | 4/2/2018 | Internal emails discussing Draft order | Exemption 5 |
| RE: [redacted] | 4/4/2018 | Internal office draft email | Exemption 5 |
| RE: [redacted] response letter (1) | 4/11/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: [redacted] response letter (2) | 4/10/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: [redacted] response letter (3) | 4/10/2018 | Internal emails discussing external affairs | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| RE: [redacted] response letter | 4/10/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: Sen. Schumer(1) | 4/10/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: Sen. Schumer | 4/10/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: [redacted] | 4/11/2018 | Internal emails discussing external affairs | Exemption 5 |
| Re: Want to join me for [redacted] ? | 4/5/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: Washington Post Live event invitation | 4/13/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: Washington Post Live event invitation | 4/12/2018 | Internal emails discussing external affairs | Exemption 5 |
| RE: Washington Post Live event invitation | 4/12/2018 | Internal emails discussing external affairs | Exemption 5 |
| [redacted] Reports | 4/3/2018 | Internal email discussing report | Exemption 5 |
| Revised draft [redacted] | 4/3/2018 | Revised draft Certificate | Exemption 5 |
| Revised draft [redacted] | 4/4/2018 | Revised draft Certificate | Exemption 5 |
| [redacted] Letter | 4/12/2018 | Internal email | Exemption 6 |
| [redacted] | 4/9/2018 | Internal emails | Exemption 6 |
| Upcoming April 17 House E&C Subcommittee Hearing - Chairman"s Drafts | 4/12/2018 | Internal emails about upcoming hearing | Exemption 5 |
| Washington Post Live event invitation | 4/11/2018 | Internal emails discussing external affairs | Exemption 5 |
| | | | |
| Advance Materials for [redacted] | 4/20/2018 | Materials for Monday's programs offices meeting | Exemption 5 |
| Advance Materials for [redacted] | 4/20/2018 | Materials for Monday's programs offices meeting | Exemption 5 |
| ADVISORS ONLY - [redacted] | 4/2018 | Emails for advisors staff only | Exemption 5 |
| Any Items for Friday Package? (13) | 4/26/2018 | Internal email in advance of Commission meeting | Exemption 5 |
| Any Other Discussion Items? (7) | 4/20/2018 | Internal email in advance of Commission meeting | Exemption 5 |
| Any Other Discussion Items?(9) | 4/27/2018 | Internal email in advance of Commission meeting | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| Automatic reply: Planned briefing [redacted] | 4/25/2018 | Internal email deliberating item topics ahead of NERC meeting | Exemption 5 |
| Background Memo [redacted] | 4/16/2018 | Internal email and memo for hearing | Exemption 5 |
| Chairman scheduling re: detail [redacted] | 4/19/2018 | Internal email with OGC | Exemption 5 |
| Chairman's DRAFT Program for Commission meeting | 4/18/2018 | Internal email for the Commission meeting | Exemption 5 |
| Chairman's prep questions | 4/18/2018 | Internal email and draft prep questions [redacted] | Exemption 5 |
| Chairman's Written Testimony and Summary for [redacted] Hearing | 4/13/2018 | Internal email and deliberations | Exemption 5 |
| Commission Memo [redacted] | 4/18/2018 | Internal email on [redacted] and notice | Exemption 5 |
| Commission Memo [redacted] | 4/24/2018 | Internal email on [redacted] and notice | Exemption 5 |
| Communication to All Employees - [redacted] | 4/30/2018 | Internal email to all employees | Exemption 5 |
| Coordinating Contact between [redacted] | 4/25/2018 | Internal email | Exemption 5 |
| Corrected [redacted] Forms | 4/17/2018 | Internal email concerning [redacted] Forms | Exemption 5 |
| Discussion Agenda(23) | 4/23/2018 | Internal email discussing matters for the program office meeting | Exemption 5 |
| Discussion Agenda(36) | 4/30/2018 | Internal email discussing matters for the program office meeting | |
| Draft Answers for [redacted] Q&A session | 4/30/2018 | Draft Q&A for Chairman Speech | Exemption 5 |
| Draft [redacted] Presentation and Questions | 4/17/2018 | Internal email for presentation | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| Draft [redacted] speech for Tuesday, April 24 | 4/20/2018 | Draft [redacted] for the Chairman | Exemption 5 |
| Draft [redacted] releases for April Commission meeting | 4/17/2018 | Draft documents prepared for upcoming Commission meeting | Exemption 5 |
| Draft [redacted] Talking Points | 4/20/2018 | Talking point for the Chairman | Exemption 5 |
| Draft [redacted] Interview Questions | 4/18/2018 | Internal email for interview | Exemption 5 |
| Draft Order [redacted] | 4/19/2018 | Internal email and draft memorandum | Exemption 5 |
| Draft Program for April Commission Meeting | 4/18/2018 | Internal email and draft document for upcoming Commission meeting | Exemption 5 |
| [redacted] \| Orders on [redacted] | 4/27/2018 | Internal emails to the Chairman | Exemption 5 |
| [redacted] complaint regarding [redacted] | 4/24/2018 | Internal email and draft memorandum | Exemption 5 |
| Feedback Requested re: [redacted] | 4/26/2018 | Internal email and draft documents | Exemption 5 |
| Final Chairman's Program attached | 4/19/2018 | Internal email and draft documents | Exemption 5 |
| [redacted] | 4/17/2018 | Internal email and agency deliberations | Exemption 5 |
| For Review: Draft Opinion on [redacted] | 4/17/2018 | Internal email re – draft order | Exemption 5 |
| FOR REVIEW: Draft talking points [redacted] | 4/13/2018 | Draft Copy of programs office open meeting | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| For Review: [redacted] Edits to Draft: [redacted] | 4/17/2018 | Internal email –post –pre agenda | Exemption 5 |
| For Your Review: [redacted] | 4/18/2018 | Copy of draft order | Exemption 5 |
| Friday Package (2) | 4/20/2018 | Internal email | Exemption 5 |
| Friday Package (3) | 4/27/2018 | Internal email | Exemption 5 |
| FW: [redacted] | 4/24/2018 | Internal email | Exemption 5 |
| Fw: 2018 [redacted] Meeting draft agenda 4 18 2018 | 4/24/2018 | Internal email | Exemption 5 |
| FW: Commission Memo [redacted] | 4/23/2018 | Internal email | Exemption 5 |
| FW: [redacted] - Report – [redacted] | 4/27/2018 | Internal email and deliberations | Exemption 5 |
| FW: For [redacted] | 4/30/2018 | Internal email from GC | Exemption 5 |
| Fw: [redacted] Open Meeting | 4/23/2018 | Internal email discussions regarding open meeting | Exemption 5 |
| Fw: Invitation to the Joint FERC/NRC Meeting, 6/7/18 | 4/26/2018 | Internal email concerning joint meeting | Exemption 5 |
| FW: [redacted] April 24th (UNCLASSIFIED) | 4/10/2018 | Internal email concerning travel | Exemption 5 |
| FW: [redacted] | 4/26/2018 | Internal email concerning ongoing matters | Exemption 5 |
| FW: [redacted] Meeting 18 April 1:30pm | Date unknown | Internal email – OGC working group | Exemption 5 |
| FW: Potential [redacted] language | 4/26/2018 | Internal email concerning ongoing matters | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| FW: Rehearing of [redacted] | 4/24/2018 | Internal email – fact act rehearing order | Exemption 5 |
| FW: [redacted] Principals | 4/27/2018 | Internal email and agency deliberation | Exemption 5 |
| FW: [redacted] Principals Meeting Summary | 4/27/2018 | Internal email and agency deliberation | Exemption 5 |
| FW: Update on [redacted] | 4/20/2018 | Internal email and draft order | Exemption 5 |
| FW: [redacted] Subcommittee on Energy Oversight Hearing [redacted] | 4/16/2018 | Internal email and agency deliberations | Exemption 5 |
| [redacted] Intelligence Briefing for [redacted] | 4/16/2018 | Internal email and agency deliberation | Exemption 5 |
| Fwd: Meeting on 4/23 or 4/24 | 4/24/2018 | Internal email and deliberative material for upcoming meeting | Exemption 5 |
| Fwd: [redacted] Technical Alert [redacted] | 4/17/2018 | Internal email and deliberations | Exemption 5 |
| Fwd: [redacted] Presentation | 4/25/2018 | Internal email and deliberations | Exemption 5 |
| Fwd: [redacted] Forms | 4/17/2018 | Internal email and draft forms | Exemption 5 |
| Fwd: [redacted] New York City-- Hotel Confirmation and Final Agenda | 4/25/2018 | Internal email and deliberations | Exemption 5 |
| Hearing Update | 4/25/2018 | Internal email and deliberations for hearing | Exemption 5 |
| House Energy Subcommittee [redacted] | 4/18/2018 | Internal email and deliberations | Exemption 5 |
| LaFleur Fwd: [redacted] — | 4/23/2018 | Internal email and deliberations | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| request for responses by May 16 | | | |
| [redacted] experience list | 4/23/2018 | Internal email and deliberations | Exemption 5 |
| [redacted] Speech | 4/30/2018 | Internal emails in prep for speech | Exemption 5 |
| Materials for May 1 [redacted] Speech | 4/30/2018 | Internal email – Material for meeting | Exemption 5 |
| Monthly OER Meeting(2) | Date unknown | Internal email setting up meeting with Chairman and OER | Exemption 5 |
| [redacted] Remarks | 4/30/2018 | Internal email and draft memorandum | Exemption 5 |
| [redacted] Technical Alert [redacted] | 4/16/2018 | Internal email and deliberations | Exemption 5 |
| need answer for [redacted] | 4/25/2018 | Internal email and agency deliberations | Exemption 5 |
| [redacted] speech talking points | 4/30/2018 | Internal email discussing topics for speech | Exemption 5 |
| News releases for issuance at today"s Commission meeting | 4/19/2018 | Internal email – New releases for today Commission meeting | Exemption 5 |
| [redacted] Draft Remarks and General Information | 4/24/2018 | Internal emails and agency deliberations | Exemption 5 |
| [redacted] | 4/13/2018 | Internal email and agency deliberations | Exemption 5 |
| One Project Item and [redacted] Timeline for Meeting with Glick | 4/20/2018 | Internal email and agency deliberations | Exemption 5 |
| Possible [redacted] Questions | 4/16/2018 | Internal email and agency deliberations | Exemption 5 |
| Preparation materials [redacted] | 4/17/2018 | Internal email - Q&A Documents for Commission meeting | Exemption 5 |
| Proposal to conduct regularly scheduled and [redacted] | 4/19/2018 | Internal email and agency deliberations | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| Proposed [redacted] | 4/25/2018 | Internal email between the Chairman and OEA | Exemption 5 |
| RE: [redacted] RE: Coordinating Contact between [redacted] (UNCLASSIFIED) | 4/30/2018 | Intra-agency deliberations (DOE) | Exemption 5 |
| RE: [redacted] Coordinating Contact between [redacted] | 4/30/2018 | Intra-agency deliberations (DOE) | Exemption 5 |
| RE: [redacted] Coordinating Contact between [redacted] | 4/27/2018 | Intra-agency deliberations (DOE) | Exemption 5 |
| re: Advance copy of DOE draft [redacted] | 4/26/2018 | Intra-agency deliberations and draft memorandum | |
| RE: Call from PJM (1) | 4/24/2018 | Internal email between Commissioners staff | Exemption 5 |
| RE: Call from PJM | 4/24/2018 | Internal emails between Commissioners staff | Exemption 5 |
| RE: [redacted] policy | 4/23/2018 | Internal email and deliberations | |
| RE: [redacted] Non-Public [redacted] (1) | 4/15/2018 | Internal emails and deliberations | Exemption 5 |
| RE: [redacted] Non-Public [redacted] (2) | 4/13/2018 | Internal emails and deliberations | Exemption 5 |
| RE: [redacted] Non-Public [redacted] | 4/16/2018 | Internal emails and deliberations | Exemption 5 |
| Re: Chairman"s prep questions | 4/19/2018 | Internal email and prep questions for hearing | Exemption 5 |
| RE: Commission Memo [redacted] and Notice | 4/23/2018 | Internal email and draft memorandum | Exemption 5 |
| RE: [redacted] staff analysis on [redacted] | 4/25/2018 | Internal email and deliberations | Exemption 5 |
| RE: [redacted] staff analysis on [redacted] | 4/23/2018 | Internal email and deliberations | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| [redacted] | | | |
| RE: Draft Chairman"s speech for [redacted] Meeting | 4/19/2018 | Internal email – Draft Speech for the Chairman | Exemption 5 |
| RE: Draft Chairman"s speech for [redacted] Meeting | 4/18/2018 | Internal email - Draft Speech for the Chairman | Exemption 5 |
| RE: Draft Chairman"s speech for [redacted] Meeting | 4/18/2018 | Internal email - Edits to the Draft Speech for the Chairman | Exemption 5 |
| RE: Draft Chairman"s speech for [redacted] Meeting | 4/20/2018 | Internal email - Edits to the Draft Speech for the Chairman | Exemption 5 |
| RE: Draft [redacted] Talking Points | 4/23/2018 | Internal email and draft talking points for speech | Exemption 5 |
| RE: Edits to [redacted] Final Rule | 4/17/2018 | Internal email and draft memorandum | Exemption 5 |
| RE: Edits to [redacted] Final Rule | 4/17/2018 | Internal email and draft memorandum | Exemption 5 |
| RE: [redacted] complaint regarding [redacted] | 4/25/2018 | Internal email – Update on [redacted] | Exemption 5 |
| RE: [redacted] Speaking Engagement on Tuesday Apr 17 | 4/13/2018 | Internal email – re: EEI talking pointing for speaking engagement | Exemption 5 |
| Re: Feedback Requested re: [redacted] comments | 4/26/2018 | Internal email – Draft Notices for Post-Technical Conference | Exemption 5 |
| RE: FERC Learning Trip | 4/26/2018 | Internal email and deliberations | Exemption 5 |
| RE: FERC Strategic Plan | 4/30/2018 | Internal email and deliberations | |
| RE: For Review - draft order [redacted] | 4/27/2018 | Internal email – Re: [redacted] | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| RE: For Review - draft order approving [redacted] | 4/27/2018 | Internal email – [redacted] | Exemption 5 |
| Re: For review: [redacted] Review Draft | 4/23/2018 | Internal email, deliberations, and draft memorandum | Exemption 5 |
| RE: For Review: Post-pre-agenda Responses and Edits to [redacted] (Docket No. [redacted] | 4/18/2018 | Internal email – Changes to Final Rule RM17-8-000 | Exemption 5 |
| RE: For Review: Post-pre-agenda Responses and Edits to [redacted] Docket No. [redacted] | 4/18/2018 | Internal email and draft memorandum | Exemption 5 |
| Re: FW: New [redacted] study | 4/27/2018 | Internal email - RE: DOE | Exemption 5 |
| RE: House Energy Subcommittee [redacted] | 4/18/2018 | Internal email- RE- on House Energy Bills | Exemption 5 |
| RE: Hydro Review Magazine article | 4/18/2018 | Internal email - Chairman final on Hydro Article | Exemption 5 |
| RE: [redacted] Briefing for [redacted] | 4/16/2018 | Internal email – Briefing for the Commissioner | Exemption 5 |
| RE: Invitation to the Joint FERC/NRC Meeting, 6/7/18 | 4/27/2018 | Internal email and deliberations | Exemption 5 |
| RE: Invitation: [redacted] Meeting on May 7 | 4/16/2018 | Internal email – RE- ESCC meeting | Exemption 5 |
| RE: [redacted] Visit April 24th (UNCLASSIFIED) | 4/10/2018 | Internal email – RE: KFC Visit | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| RE: Official Invitation Letter: 4.17.18 Energy Submte Hrg | 4/13/2018 | Internal email - Subcommittee hearing | Exemption 5 |
| RE: [redacted] Memorandum [redacted] | 4/20/2018 | Internal email - RE: [redacted] and MOU Meeting | Exemption 5 |
| RE: One Project Item and [redacted] for Meeting with Glick | 4/20/2018 | Internal email - revised version of the hydro article | Exemption 5 |
| RE: Preparation materials [redacted] | 4/18/2018 | Internal email – Q&A for Commission meeting | Exemption 5 |
| Re: Proposed [redacted] Language (2) | 4/26/2018 | Internal email – Language for conference Call | Exemption 5 |
| Re: Proposed [redacted] Language | 4/27/2018 | Internal email – updated Language for the conference Call | Exemption 5 |
| Re: request for comments (2) | 4/26/2018 | Internal email and deliberations | Exemption 5 |
| Re: request for comments (3) | 4/25/2018 | Internal email and deliberations | Exemption 5 |
| Re: request for comments (4) | 4/30/2018 | Internal email - response to House Appropriations Committee staff | Exemption 5 |
| Re: request for comments (5) | 4/18/2018 | Internal email and deliberations | Exemption 5 |
| Re: request for comments (6) | 4/29/2018 | Internal email and deliberations | Exemption 5 |
| RE: request for comments (8) | 4/26/2018 | Internal email and deliberations | Exemption 5 |
| Re: Requesting Meeting to Discuss DOE Matter | 4/13/2018 | Internal email and deliberations | Exemption 5 |
| RE: Revised [redacted] memo - [redacted] | 4/20/2018 | Internal email – Revised memo [redacted] | Exemption 5 |
| RE: [redacted] Letter | 4/24/2018 | Internal email – [redacted] awaiting Chm signature | Exemption 5 |
| Responding to your message | 4/16/2018 | Internal email and deliberations | Exemption 5 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

Withheld Document Index – Sixth Release

| | | | |
|---|---|---|---|
| Revised [redacted] memo - [redacted] | 4/18/2018 | Internal email – Revised memo [redacted] | Exemption 5 |
| Scheduling related to [redacted] | 4/19/2018 | Internal email discussions | Exemption 5 |
| [redacted] from last fall for Terry | 4/30/2018 | Internal email and deliberations from OEA to the Chairman | Exemption 5 |
| Suggested questions [redacted] | 4/18/2018 | Internal email and talking points | |
| [redacted] Principals | 4/23/2018 | Internal email and deliberations | Exemption 5 |
| Testimony to Capitol Hill | 4/13/2018 | Internal email – Re meeting on Capitol Hill | Exemption 5 |
| [redacted] | 4/22/2018 | Internal email and deliberations | Exemption 5 |
| RE_ [redacted] | 4/20/2018 | Email involving personnel matter, including resume, bio, cover letter, etc. | Exemption 6 |

**Many of the documents withheld are repeat documents with varying recipients or differing material

AMERICAN OVERSIGHT

**From:** Tracy Adamsky
**To:** Anthony Pugliese; Laura Swett; Nicholas Gladd; Angela Amos; Carolyn Clarkin
**Cc:** Martin Kirkwood
**Subject:** ADVISORS ONLY - New England Power Generators Association
**Attachments:** New England Electricity Overview April 2018.pdf
Dolan Bio.doc

---

Attendees:
Dan Dolan, President, NEPGA

Text of Original Request:

Hi Tracy and Michelle –

Following up further from this, I wanted to see if the Chairman would have some time on April 25 for a meeting. I'd like to provide a general overview to issues in New England at the moment as well as highlighting future market issues/opportunities generators are looking at in the region for the balance of 2018. Would he happen to have a few minutes that day?

I will be seeing James Danly also that day along with some others in the building. In the alternative, I could also do something on April 26 if that would work better.

Thank you very much for your help.

-Dan

Dan Dolan
President, New England Power Generators Association
ddolan@nepga.org <mailto:ddolan@nepga.org>
Direct: (617) 516-5355
Cell: (b) (6)
Follow us on Twitter: @NEPowerGen <https://twitter.com/NEPowerGen>

AMERICAN OVERSIGHT

**From:** Tracy Adamsky
**To:** Anthony Pugliese; Laura Swett; Angela Amos; Nicholas Gladd; Carolyn Clarkin
**Subject:** ADVISORS ONLY - Troutman Sanders/Louisville Gas & Electric Company/Kentucky Utilities Company Filing
**Attachments:** LGE-KU Presentation.pdf
1-Thompson.pdf
2-Crockett.pdf
3-Keisling.pdf
4-Dailey.pdf
5-Jones.pdf

---

Attendees:
Paul Thompson, Chairman, CEO and President of LG&E and KU Energy
John Crockett, General Counsel, Chief Compliance Officer and Corporate Secretary
Jennifer Keisling, Director of Federal Regulation and Senior Counsel
Chris Jones, Outside Counsel
Anne Dailey, Outside Counsel

Text of Original Request:

Name: Anne Dailey
Title: Partner
Company / Organization: Troutman Sanders
Phone Number: (b) (6)
Web Address: 401 9th Street, NW
Email: anne.dailey@troutman.com <mailto:anne.dailey@troutman.com?subject=RE:%20Request%20for%20a%20Meeting%20with%20Chairman%20Neil%20Chatterjee>
Purpose of Meeting (Detailed Description): To discuss upcoming Louisville Gas and Electric Company/Kentucky Utilities Company filing
Is this matter before the Commission? No
Proposed Date for Meeting: 04/26/2018
Alternate Date for Meeting: 04/25/2018
Estimate of the Number of people attending: 4-5

AMERICAN OVERSIGHT

**From:** John Jaggers
**To:** (b) (6) ; (b) (6) ; (b) (6) ; Clair Weigle; Mark Flynn
**Cc:** Anthony Pugliese; Travis Fisher; Treena Wetsel; John Esplin
**Subject:** All - In the Public domain regarding Cyber threats/attacks on our infrastructure - much of this part of FERC"s domain
**Date:** Wednesday, April 25, 2018 12:41:19 PM
**Importance:** Low

---

http://www.breitbart.com/national-security/2018/04/25/dhs-russian-government-actors-targeting-u-s-nuclear-cyber-sphere/

Warm Regards,
John E. Jaggers
Director, Solutions
(b) (6)

AMERICAN OVERSIGHT

**From:** Janet Sena
**To:** Anthony Pugliese
**Subject:** RE: at 888
**Date:** Wednesday, April 11, 2018 1:57:11 PM

---

Haven't heard, but we are meeting with him tomorrow so will follow up. Thank you!

**Janet Sena**
**Senior Vice President and Director of Policy and External Affairs**
North American Electric Reliability Corporation
1325 G Street NW Suite 600
Washington, DC 20005
202-644-8067 office | (b) (6) cell
janet.sena@nerc.net
**Reliability | Accountability**

---

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Wednesday, April 11, 2018 1:54 PM
**To:** Janet Sena <Janet.Sena@nerc.net>
**Subject:** RE: at 888

Any news on speaking engagement at your meeting? All three Rs cannot attend so I asked Glick to

---

**From:** Janet Sena [mailto:Janet.Sena@nerc.net]
**Sent:** Wednesday, April 11, 2018 12:59 PM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: at 888

Not a big deal, very last minute….thanks for responding!

**Janet Sena**
**Senior Vice President and Director of Policy and External Affairs**
North American Electric Reliability Corporation
1325 G Street NW Suite 600
Washington, DC 20005
202-644-8067 office | (b) (6) cell
janet.sena@nerc.net
**Reliability | Accountability**

---

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Wednesday, April 11, 2018 12:36 PM
**To:** Janet Sena <Janet.Sena@nerc.net>
**Subject:** RE: at 888

Sorry chairman and I were out of the building

---

**From:** Janet Sena [mailto:Janet.Sena@nerc.net]
**Sent:** Wednesday, April 11, 2018 9:53 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>

AMERICAN OVERSIGHT

**Subject:** at 888

I'm bringing Jim Robb over to meet with Neil Chatterjee at 10:30 this morning, not sure if you are around, but might stop by to just say hello. Not a big deal – I know your schedule is crazy. Just wanted to let you know we were in the building. Fritz is down at the tech conference.

**Janet Sena**
**Senior Vice President and Director of Policy and External Affairs**
North American Electric Reliability Corporation
1325 G Street NW Suite 600
Washington, DC 20005
202-644-8067 office | (b) (6) cell
janet.sena@nerc.net
**Reliability | Accountability**

This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.
Warning: This email comes from an external sender. Be cautious when opening URLs or attachments from external senders.
Warning: This email comes from an external sender. Be cautious when opening URLs or attachments from external senders.

AMERICAN OVERSIGHT

**From:** Catanzaro, Michael J. EOP/WHO
**To:** Anthony Pugliese
**Subject:** Automatic reply:
**Date:** Thursday, April 5, 2018 3:57:12 PM

---

I am currently out of the office with limited access to email.

AMERICAN OVERSIGHT

**From:** Glazer, Craig
**To:** Anthony Pugliese
**Cc:** Joseph McClelland
**Subject:** Available for a Phone Call? Update on Our Discusssions with DOE and the White House
**Date:** Thursday, April 19, 2018 6:40:25 AM

---

Anthony:

As we didn't hook-up yesterday, let me know if we can find some brief time to talk today. I can call you anytime from 11-2 or 3:30 to 6PM (realizing you have the Commission meeting today).

My goal is to avoid any surprises as I would like to fully update you and the Chairman on our discussions with DOE and today at the White House re: 202 c.

Let me know what might work during any of those times.

P.S. Andy Ott will be meeting with the DOE Deputy Secretary next week. As he is in DC, I was also going to reach out to Tracy to see if a brief meeting on Thursday of next week (April 26) would be possible or else a phone call with the Chairman. Again my goal is to ensure full transparency to our suggestions to DOE to address this 202 c conundrum.

Thanks.

Craig Glazer
PJM

AMERICAN OVERSIGHT

**From:** Kevin McIntyre
**To:** Smith, Katherine R. EOP/CEQ
**Cc:** Anthony Pugliese
**Subject:** Catanzaro farewell event
**Date:** Tuesday, April 24, 2018 3:50:12 PM

---

Ms. Smith –

I do not know whether Anthony Pugliese has replied on behalf of both of us to your kind invitation. Hence this note: Please put us both on your YES list, Thanks much, and let us know if you need any more info.

Kevin McIntyre

AMERICAN OVERSIGHT

**From:** Lindsee Gentry
**To:** Anthony Pugliese
**Subject:** RE: Chick fil A biscuit coming your way
**Date:** Tuesday, April 10, 2018 10:03:52 AM

Here!!

**From:** Anthony Pugliese
**Sent:** Tuesday, April 10, 2018 9:31 AM
**To:** Lindsee Gentry <Lindsee.Gentry@ferc.gov>
**Subject:** RE: Chick fil A biscuit coming your way

Ummm thank you, heaven on earth!!!!!!!!!!

**From:** Lindsee Gentry
**Sent:** Tuesday, April 10, 2018 9:29 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** Chick fil A biscuit coming your way

As a small token of gratitude. Heading in from DCA now- should be in by 10am. I'll ping you when I get in so you can come grab it whenever you have a sec!

Sent from my iPhone

On Apr 9, 2018, at 11:33 AM, Anthony Pugliese <Anthony.Pugliese@ferc.gov> wrote:

> absolutely
>
> **From:** Lindsee Gentry
> **Sent:** Friday, April 06, 2018 4:48 PM
> **To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
> **Subject:** FW: *UPDATED INFORMATION* Celebration of The Alabama Crimson Tide - Tuesday, April 10, 2018
> **Importance:** High
>
> Want to Uber together? I don't know if NC will be able to go given timing of Tech Conference.
>
> **From:** The White House Social Office RSVP [mailto:SocialOfficeRSVP@who.eop.gov]
> **Sent:** Friday, April 06, 2018 2:50 PM
> **To:** The White House Social Office RSVP <SocialOfficeRSVP@who.eop.gov>
> **Subject:** *UPDATED INFORMATION* Celebration of The Alabama Crimson Tide - Tuesday, April 10, 2018
> **Importance:** High

AMERICAN OVERSIGHT

Good afternoon,

We are delighted you will be joining us at the South Lawn of the White House for a celebration in honor of the 2017 College Football National Champions, The Alabama Crimson Tide on Tuesday, April 10, 2018 at 3:30 p.m.

Please carefully read the information below to ensure there are no delays in the entry process.

We have attached access details for the Southeast Gate, located at 15th Street and Alexander Hamilton Place, NW. **Please note that there has been a change in gate timing for this event. Gates will open at 2:00 p.m. and no guests will be permitted after at 3:15 p.m.**

On arrival, acceptable forms of identification include a valid United States driver's license, or a valid passport from another country. Any discrepancy between the information provided and the information stated on your government-issued ID will delay the entry process.

Business attire is suggested. Please be aware of weather forecasts and plan accordingly as this event is outdoors.

Prohibited items include, but are not limited to, the following: footballs or projectiles, signs or flags of any kind, large bags or suitcases, strollers, food or beverage (water will be provided), any pointed object (including pocket knives), large electronics (including video recorders, large cameras and laptops) and selfie sticks. For a complete list of prohibited items, please click here.

This event will be held outside on the South Lawn. In the event of inclement weather, you will be notified of any changes within 24 hours of gates opening.

Thank you for your assistance.

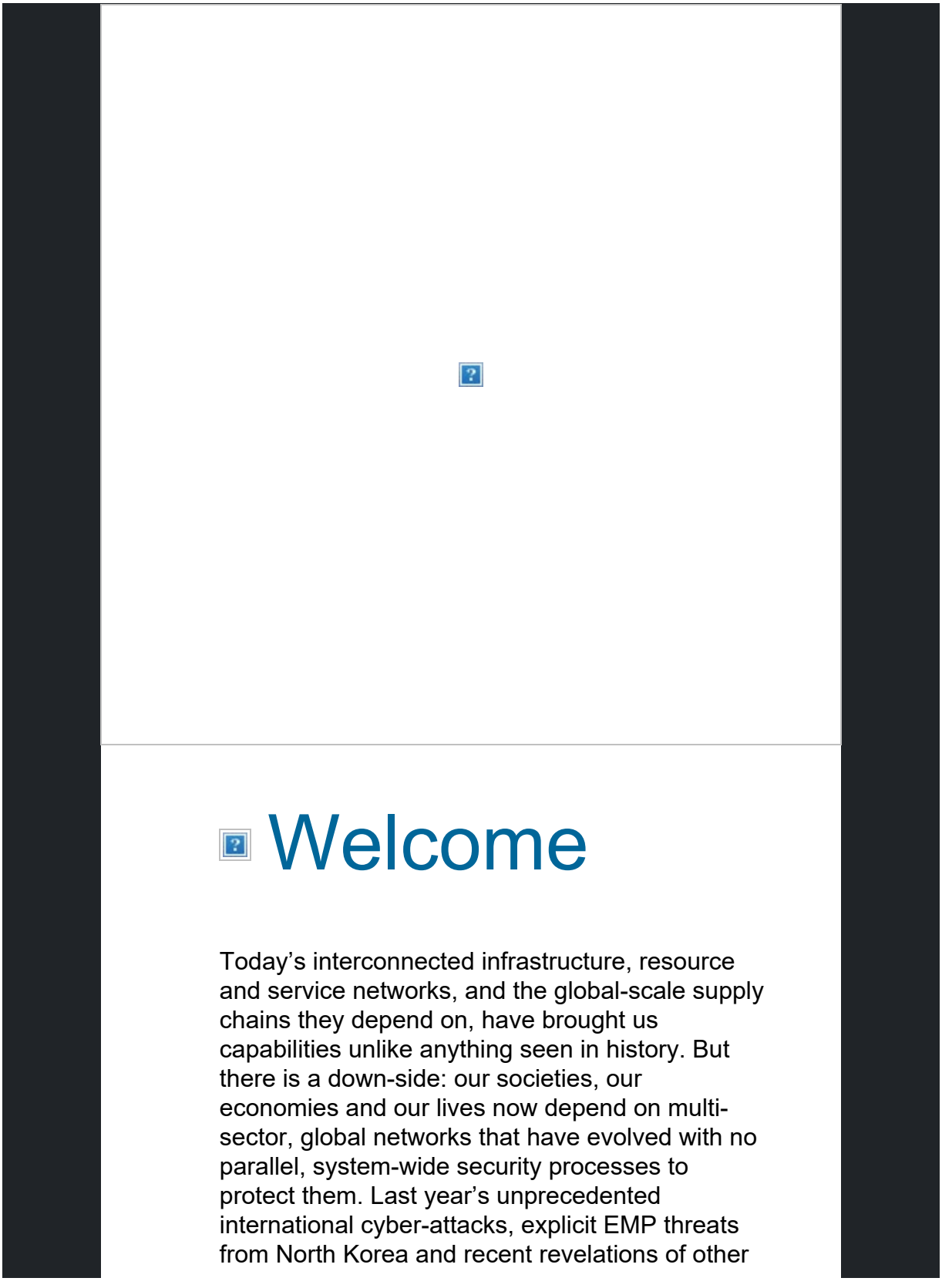
Sincerely,

AMERICAN OVERSIGHT

The White House Social Office

AMERICAN OVERSIGHT

**From:** EIS Council
**To:** Anthony Pugliese
**Subject:** EIS Council Quarterly Update - Winter 2018
**Date:** Monday, April 16, 2018 10:20:04 AM



# Welcome

Today's interconnected infrastructure, resource and service networks, and the global-scale supply chains they depend on, have brought us capabilities unlike anything seen in history. But there is a down-side: our societies, our economies and our lives now depend on multi-sector, global networks that have evolved with no parallel, system-wide security processes to protect them. Last year's unprecedented international cyber-attacks, explicit EMP threats from North Korea and recent revelations of other

AMERICAN OVERSIGHT

nation-state attacks on U.S. utilities underscored this societal vulnerability, highlighting infrastructure security as one of the most important challenges facing our world.

EIS Council is dedicated to helping host development of plans and tools to address this vulnerability. EPRO® Handbook III, scheduled to be published this spring, lays out a new vision for cross-sector coordination, and reviews the BSX interoperable emergency communication system architecture as a tool to host such cross-sector planning. Preparations are now moving forward to begin a potential near term BSX Block I Limited Operational Capability (LOC) near full-scale prototype deployment for U.S. corporations and government agencies. In parallel, EIS Council has begun working with an expanding international team on development of a Global Infrastructure Network Optimization Model (GINOM™) designed to help frame multi-sector situational awareness, in phased development of decision support tools optimized for eventual hosting on an expanded BSX system.

Of course, emergency plans, communication systems and decision support tools are only effective when exercised. The EARTH EX® exercise family is now expanding, hosting a fast-growing set of facilitated sector-specific, multi-sector and international exercises designed to allow interactive video-enabled training spanning 24 sectors across the United States and worldwide.

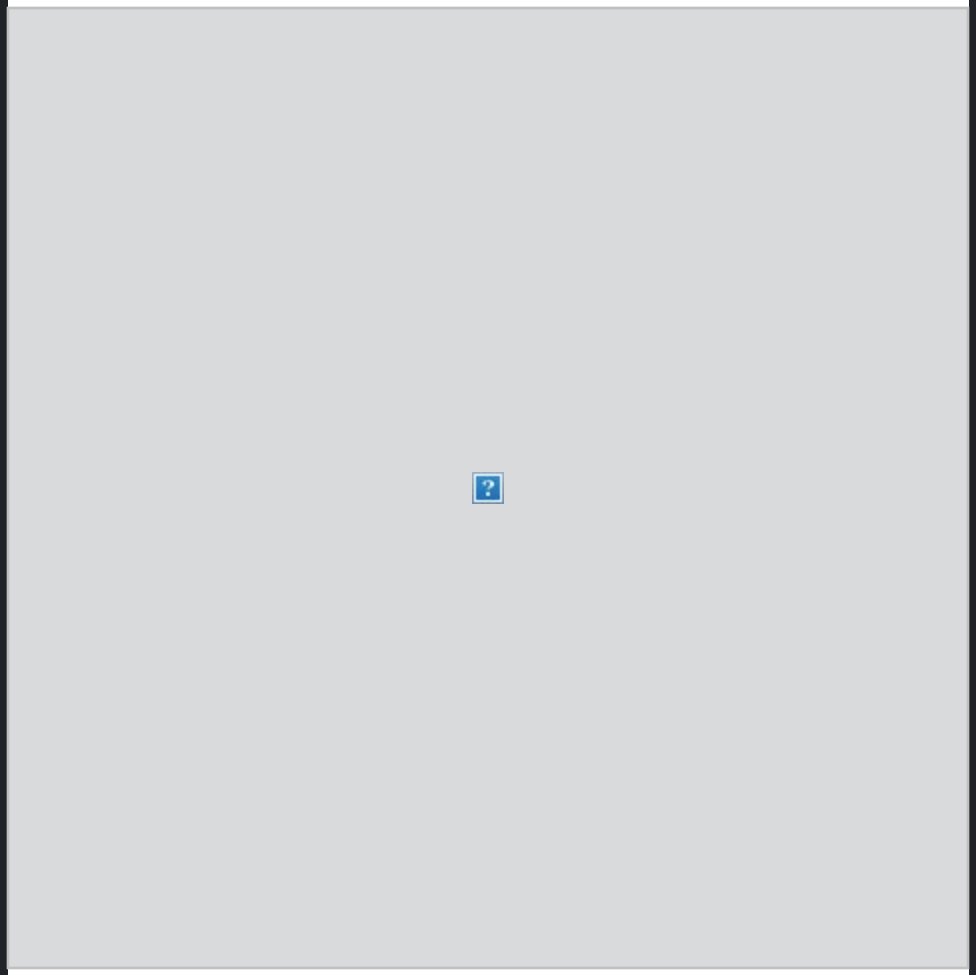
These are just a few examples from the expanding menu of initiatives EIS Council is developing. Each is reviewed below, along with partnerships for new EMP vulnerability testing and a potential new cybersecurity framework, new developments in Black Sky resilience metrics and early news on Electric Infrastructure Security Summit IX, coming this summer in the Houses of Parliament and in Westminster, London.

Please join me in thanking the many organizations and individuals who support our work, and share our joint commitment to help

AMERICAN OVERSIGHT

secure our fast-changing world.

**Avi Schnurr**, CEO and President, EIS Council



# 1st Quarter 2018 Project Highlights

AMERICAN OVERSIGHT

## EIS Summit IX, London. June 25-26, 2018.

EIS Council's ninth annual flagship annual Electric Infrastructure Security Summit will be held on June 25-26, 2018. This invitation-only summit will be held in the Houses of Parliament and in Westminster, London. The theme for summit:

*"**Working Together to Secure Our World**: Building Multi-Sector, International Resilience to Extreme Hazards."*

On Day 1, delegates in plenary session will explore challenges and opportunities posed by the rapid rise of malicious Black Sky threats: Cyber, EMP and physical attacks on lifeline infrastructures and societal resource and service networks.

Day 2 is framed as the annual summer meeting of the EPRO® SECTOR Executive Committee. Sector by sector panels and focused breakout sessions will provide structured resources and facilitated discussion to help delegates consider threat impacts, critical planning gaps and action plans needed to prepare for complex catastrophes.

This event will be by invitation only.

.

## Science Update

In partnership with the U.S. Department of Defense Threat Reduction Agency (DTRA) and Scientific

AMERICAN OVERSIGHT

Applications and Research Associates (SARA), EIS Council published a report on new EMP hardware vulnerability test results performed last year. The report, *Electromagnetic Black Sky Responses of Power and Control Equipment,* is available at https://www.eiscouncil.org/App_Data/Upload/735d4126-16da-49bb-80fe-4dc2c72e5f85.pdf. Unique component level test data was taken on EMP vulnerability and protection methods for representative, critical transmission substation equipment deployed extensively across the U.S. by electric power utilities, including digital relays and a substation battery system.

In brief, simulated EMP pulses caused disruption and hardware damage to nearly all tested components, but the components had good resilience when simple, cost-effective protection methodologies were installed.

The report also identified an important area of concern for future study: electric power generation Distributed Control Systems (DCS). EIS Council has now initiated a follow-on vulnerability study of representative DCS components and in-situ system testing at generation sites, in partnership with DTRA and SARA.



AMERICAN OVERSIGHT

# Recent Highlights

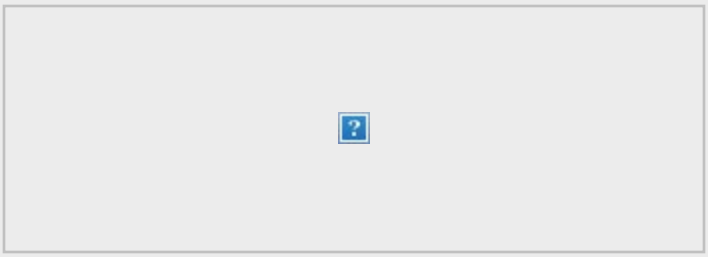
**EPRO® Electric Subsector Executive Session, Israel, Feb. 20-22, 2018**

U.S. corporate and government executives spent three days in Israel this quarter, reviewing Israeli best practices and considering international challenges and opportunities addressing cyber, EMP and national-scale hazards. On the first day of the session, Israel Electric Corporation's senior executive team briefed the delegation on Israel's commitment to Black Sky survivability, and hosted visits to the IEC control center and the CyberGym training facility.

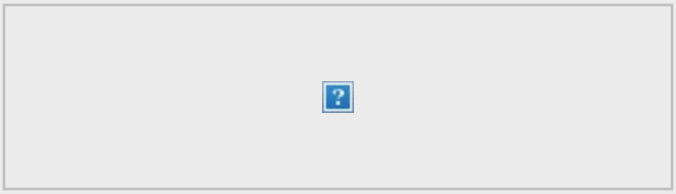
The second day was hosted by the

AMERICAN OVERSIGHT

Interdisciplinary Center in Herzliya, focusing on cyber and EMP security and counter-terrorism, including a tabletop electric utility cyberattack exercise. On the third day of the session, delegates had an opportunity to develop a first-hand societal and historical context for the briefings, with a guided tour of Jerusalem's Old City and Israel's Holocaust Museum.



Highlights of recent and current EPRO SECTOR events



## EPRO® SECTOR Black Sky Planning: The Private Sector

This quarter, EIS Council expanded its efforts in hosting Black Sky planning for the Private Sector, as part of the EPRO® SECTOR Project. An initial, facilitated EARTH EX® Black Sky exercise took place in Salem, Oregon on February 7th in conjunction with the FEMA Region X Regional Interagency Steering Committee (RISC) Meeting. This quarterly meeting brings together representatives from multiple agencies to discuss regional issues related to preparedness, infrastructure protection, communications and other topics.

The exercise was highly successful, raising awareness of the urgency of Black Sky hazards and key planning gaps for a unique and important group of private sector and

AMERICAN OVERSIGHT

government leaders. There were over 50 participants, including the new Region X, the Regional Administrator, a number of private sector and electric subsector partners, and other Federal Agencies.

Plans are now in development for bringing in additional private sector partners through similar exercises in the coming months. As a key focus, these efforts will be structured to continue to include both public and private sector leaders, to highlight the need for coordinated Black Sky planning spanning all critical corporate, government and NGO sectors.

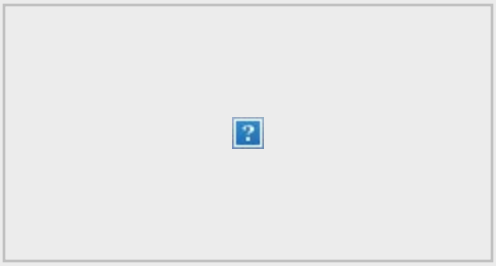
### EPRO® SECTOR Black Sky Planning: The State Sector

As part of its EPRO SECTOR Black Sky planning project, EIS Council facilitated a State Sector exercise for the State of Michigan in early March. Participants included the Michigan State Police, and the State's Emergency Management and Homeland Security Division, at the request of Captain Chris Kelenske, the Division's Deputy Director. The exercise underlining the critical need for public-private sector coordination, and was well attended by State leaders from both sectors. The exercise followed a November tabletop exercise facilitated for the Michigan State Police which emphasized emergency management and key emergency management support functions.

Exercise participants were deeply appreciative of this opportunity, highlighting a critical benefit of the event, and one that has become a key takeaway from many similar events. These exercises are now being talked about, around the U.S., as unique and vital opportunities to bring together multi-sector government and corporate partners to develop and strengthen relationships, and begin building Black Sky planning spanning many disparate sectors.

This exercise will now be followed by a more extensive follow-up exercise, now in planning for this coming summer.

AMERICAN OVERSIGHT



## EPRO® SECTOR Black Sky Planning: The Water Sector

The EIS Council is supporting the Environmental Protection Agency's efforts to enhance the water sector's resilience to long-term power outages. Dr. Paul Stockton presented a webinar to members of the Association of Municipal Water Agencies (AMWA) in January, and additional webinars on Black Sky topics are planned for the Spring and Summer.

An EARTH EX® Black Sky Exercise for the National Capital Region took place on April 4, 2018, including government and utility participants from the region extending from Baltimore, Maryland south to Fredericksburg, Virginia. This was the first exercise of its kind, including the entire, extended Capital Region and focusing on critical planning and actions needed for a prolonged power outage.

A similar exercise is also now in planning to address the entire United States, in conjunction with WEFTEC 2018, which will be held in New Orleans, October 1-3, 2018. Also in that timeframe, EIS Council is requesting an opportunity to develop a Black Sky Resilience panel at the Water Infrastructure Conference in Atlanta, October 28-31.

## EPRO® SECTOR Black Sky Planning: The Regulatory Sector

For the past year the EIS Council team has been working with partners from the regulatory sector to host development of a Resilience Framework, Metrics and Matrix Tool. This resilience tool is

AMERICAN OVERSIGHT

designed to be useable by government regulators, critical infrastructure owners, operators and stakeholders to aid in decision making for resilience investment. The work is intended to provide answers to a fundamental question sometimes framed as the Black Sky "Future Question:"

Does the United States wish to be prepared to survive a Black Sky hazard? And a corollary to the question: Should we challenge ourselves to find cost effective approaches to address such hazards?

Our efforts are focused on Black Sky hazards, a term referring to emerging, extreme, malicious and natural hazards, when taking place at a level that could cause subcontinent-scale power outages. While much work has been done by critical infrastructure owners relating to "Gray Sky" hazards, our emphasis is on hazards that, when they occur, will initiate complex catastrophes – scenarios where sector by sector resilience investment and planning, and cross-sector coordination, will be essential to national continuity following such an event.

EIS Council hopes to release its Resilience White Paper this coming spring quarter. The paper sets forth a framework for the creation of resilience metrics that can be used by all critical sectors, as well as for cross-sector and interdependent infrastructures, and the regulators relevant to these sectors. Metrics may be developed both at an operational and strategic level with focus on societal impacts and consequences. A corresponding matrix tool will utilize these metrics and support efforts to meet or exceed the associated measurements.

AMERICAN OVERSIGHT

# Recent Highlights



### Infrastructure Simulation – the GINOM Initiatives

EIS Council is now hosting development of the Global Infrastructure Network Optimization Model (GINOM™), in coordination with a growing international team and potential partners. There were a number of major developments and

AMERICAN OVERSIGHT

successful events this quarter.

We continued to build out our technical design, holding two high level working meetings and planting the seeds for two potential, major partnerships. Our GINOM West Working Meeting was held in California at the offices of Applied Minds Inc. The meeting was attended by a number of academic and utility stakeholders who are committed to playing their part in building infrastructure supply chain resilience and enabling realistic paths for post disaster restoration. This meeting included Esril's CEO and members of its top management team, with highly productive discussions that have formed the basis for ongoing discussions between the two corporations. As the geospatial information system company whose technology provides geospatial awareness products to 100% of US utilities and a large portion of utility providers worldwide, ESRI's products are seen as particularly vital to GINOM's development.



Our GINOM UK meeting was held in London and attended by key members of the academic infrastructure simulation community, high level government officials and representatives of mission aligned NGOs. Our presentation and the ensuing discussion generated a number of clear-cut collaborative action items and invitations for future talks, as well as a great deal of positive interest from the community. As part of this event, our team met directly with senior management of a corporation whose simulation platform could help host a possible future forecasting "app" that could be added-in to a geospatial information system-hosted GINOM model. Initial indications for this future option were also quite positive.

The GINOM team continues to move forward as

AMERICAN OVERSIGHT

we begin the second quarter 2018, developing expanding pathways toward workable partnerships, and building out the technical design and demonstration that have been catalysts in driving momentum for this important project.

.

## EARTH EX® 2018

Building on the success of EARTH EX 2017 and the lessons learned, EARTH EX 2018 planning began in December 2017, with a Concepts and Objectives session. This was followed with the Initial Planning Conference on January 11. Initial exercise assignments were set and target participant audiences determined. The next step is the Mid Planning Conference on March 15. The Final Planning Conference will be on May 3 and registration will open on June 1. Additional Sector participation as well as additional Sectors are anticipated for the August 22, 2018 EARTH EX delivery.

## EARTH EX® Black Sky Planning Workshops

The EARTH EX Black Sky Exercise series continues to deliver on-site exercises to decision makers in organizations across the country. In response to a growing series of requests from

AMERICAN OVERSIGHT

organizations that have hosted these exercises, a new project is now being initiated. The EARTH EX Black Sky Planning Workshop project is being designed to begin where the conventional EARTH EX exercise leaves off, providing a focused opportunity for an organization's Black Sky planning.

Several workshop models are being utilized which can be tailored to meet clients' needs and available budget. Each is optimized for the participants to include a regional scenario with local impacts. These range from single day events up to multi-day conference discussions.

All exercises delivered will include HSEEP documentation for the host organization. Deliveries to date in 2018 include FEMA Region I in January and FEMA Region X in February. Participants included representatives from Federal agencies, State agencies as well as industry, with a focus on examining the details of the Power Outage Incident Annex, POIA. Upcoming workshops include exercises in Michigan, New Hampshire and Rhode Island. Other planned workshops are in the initial discussion phase.



## BSX™ Update

A successful demonstration of key elements of the Black Sky Emergency Communications and Coordination System (BSX) took place on December 12, 2017 at PJM Headquarters in Audubon, Pennsylvania. The demonstration was included as part of the EPRO® SECTOR Executive Committee, Winter 2017.

EIS Council is now developing detailed planning to support a very near term start of near full-scale prototypes of the system, with the BSX Block I Limited Operational Capability (LOC) Prototype

AMERICAN OVERSIGHT

Build. Potential partners for BSX Block I LOC include the California Office of Emergency Services, the Defense Advanced Research Projects Administration (DARPA), the Department of Homeland Security (DHS), PJM Interconnection and Dominion Virginia Power.

.





AMERICAN OVERSIGHT

SafeUnsubscribe™ anthony.pugliese@ferc.gov
Forward email | Update Profile | About our service provider
Sent by kelly.cullinane@eiscouncil.org

AMERICAN OVERSIGHT

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Anthony Pugliese; Laura Swett; Nicholas Gladd; Angela Amos; Carolyn Clarkin
**Cc:** Martin Kirkwood
**Subject:** Environmental Defense Fund
**Attachments:** EDF Bios.docx
5_3_2018 Presentation to FERC Chair.pdf

---

Attendees:
N. Jonathan Peress, Senior Director, Energy Market Policy, EDF
Natalie Karas, Senior Regulatory Attorney, EDF
Elgie Holstein, Senior Director for Strategic Planning, EDF
Greg Lander, President, Skipping Stone LLC

Text of Original Request:

Chairman McIntyre, I am writing to request a meeting to discuss enhancing gas/electric coordination. Senator Cassidy's query on Tuesday seems like a lead-in and we are engaging your Commission colleagues and staff. Our detailed analysis illuminates gas market refinements to better align with the emergent needs of its now largest user, power plants. We propose transactional standards whereby merchant power plants become not just pipeline users but also pipeline contract customers. Our starting point is supported by pipelines and key industry segments at NAESB: a means and protocol for shippers to contract for, nominate, and pipelines to confirm shaped flows -takes that vary by hour (see, e.g., RM14-2-000, AD14-19-000). The goals: more efficient price formation and price discovery for the valuable (but currently unpriced) non-ratable (peak and sub-day) transportation services upon which reliability and generators depend, and to channel market-driven infrastructure investment. As I have suggested to our friends at ISO-NE, in the absence of power plant demand contracting with infrastructure developers, we will not see power plant demand-pull pipeline capacity being deployed. [Yes, reflecting fuel scarcity cost/risk in the electric markets helps but a willing infrastructure solution counterparty and thus, a commercially viable gas/electric transactional structure is also needed].

We have numerous studies including a comprehensive data set on how the pipelines serving the east coast (VA – ME) were used during the 2014 polar vortex (referenced by Sen. Cassidy), power plant pipeline hourly/daily take patterns under constrained and normal conditions, and by the time we meet, a new data set on pipeline utilization, generator takes, LNG vaporization injections and other aspects during the recent cold weather event. We are also collaborating with the DOE Office of Electricity Delivery and Energy reliability to advance the gas/electric coordination recommendation from the Staff reliability report (and also former Commissioner Moeller). Would Feb 27 or 28 work (as we have a meeting scheduled with Commissioner Chatterjee)? Please let me know. I can send some materials over sooner. Thanks. [And to be clear, EDF does not oppose new pipeline capacity. We want the markets to rationally and efficiently channel investment.] -Jonathan

N. Jonathan Peress
Senior Director, Energy Market Policy

Environmental Defense Fund
18 Tremont Street Suite 850
Boston, MA 02108
T 617 406 1838
C (b) (6)
njperess@edf.org <mailto:njperess@edf.org>
edf.org <http://edf.org>

*This meeting was discussed and agreed upon at the 3/13 scheduling meeting.

AMERICAN OVERSIGHT

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Anthony Pugliese; Laura Swett; Nicholas Gladd; Angela Amos; Carolyn Clarkin
**Cc:** Martin Kirkwood
**Subject:** Environmental Defense Fund
**Attachments:** EDF Bios.docx

---

Attendees:
N. Jonathan Peress, Senior Director, Energy Market Policy, EDF
Natalie Karas, Senior Regulatory Attorney, EDF
Elgie Holstein, Senior Director for Strategic Planning, EDF
Greg Lander, President, Skipping Stone LLC

Text of Original Request:

Chairman McIntyre, I am writing to request a meeting to discuss enhancing gas/electric coordination. Senator Cassidy's query on Tuesday seems like a lead-in and we are engaging your Commission colleagues and staff. Our detailed analysis illuminates gas market refinements to better align with the emergent needs of its now largest user, power plants. We propose transactional standards whereby merchant power plants become not just pipeline users but also pipeline contract customers. Our starting point is supported by pipelines and key industry segments at NAESB: a means and protocol for shippers to contract for, nominate, and pipelines to confirm shaped flows -takes that vary by hour (see, e.g., RM14-2-000, AD14-19-000). The goals: more efficient price formation and price discovery for the valuable (but currently unpriced) non-ratable (peak and sub-day) transportation services upon which reliability and generators depend, and to channel market-driven infrastructure investment. As I have suggested to our friends at ISO-NE, in the absence of power plant demand contracting with infrastructure developers, we will not see power plant demand-pull pipeline capacity being deployed. [Yes, reflecting fuel scarcity cost/risk in the electric markets helps but a willing infrastructure solution counterparty and thus, a commercially viable gas/electric transactional structure is also needed].

We have numerous studies including a comprehensive data set on how the pipelines serving the east coast (VA – ME) were used during the 2014 polar vortex (referenced by Sen. Cassidy), power plant pipeline hourly/daily take patterns under constrained and normal conditions, and by the time we meet, a new data set on pipeline utilization, generator takes, LNG vaporization injections and other aspects during the recent cold weather event. We are also collaborating with the DOE Office of Electricity Delivery and Energy reliability to advance the gas/electric coordination recommendation from the Staff reliability report (and also former Commissioner Moeller). Would Feb 27 or 28 work (as we have a meeting scheduled with Commissioner Chatterjee)? Please let me know. I can send some materials over sooner. Thanks. [And to be clear, EDF does not oppose new pipeline capacity. We want the markets to rationally and efficiently channel investment.] -Jonathan

N. Jonathan Peress
Senior Director, Energy Market Policy

Environmental Defense Fund
18 Tremont Street Suite 850
Boston, MA 02108
T 617 406 1838
C (b) (6)
njperess@edf.org <mailto:njperess@edf.org>
edf.org <http://edf.org>

*This meeting was discussed and agreed upon at the 3/13 scheduling meeting.

AMERICAN OVERSIGHT

**From:** Webb, Erik K
**To:** Andrew Kohout; (b) (6) ; steven.cade@hq.doe.gov; MRMaddox@hq.doe.gov; RobertJ.Smith@hq.doe.gov; (b) (6) ; Anthony Pugliese; Terry Turpin; (b) (6)
**Subject:** FERC-SNL-DOE Dialog 2018-04-12
**Date:** Thursday, April 12, 2018 3:13:37 PM
**Attachments:** FERC-SNL-DOE Dialog 2018-04-12.docx
ATT00001.htm

AMERICAN OVERSIGHT

**From:** Mount, Colin
**To:** Kevin McIntyre; Cheryl LaFleur; Neil Chatterjee; Robert F. Powelson; Rich Glick
**Cc:** Anthony Pugliese; Andrew Weinstein; Andrea Spring; Rikardo Hull; Pamela Quinlan
**Subject:** FirstEnergy Solutions (FES) and FirstEnergy Nuclear Operating Company (FENOC) file Chapter 11
**Date:** Sunday, April 1, 2018 12:31:04 PM
**Attachments:** image001.png
2018-03-31 FE"s Transformation to Fully Regulated Utility Company Moves Ahead.pdf

---

Please excuse the intrusion on this holiday weekend but I wanted to pass along some timely information.

Late last night, FirstEnergy Solutions (FES), all of its subsidiaries and FirstEnergy Nuclear Operating Company (FENOC) voluntarily filed petitions under Chapter 11 of the Federal Bankruptcy Code with the U.S. Bankruptcy Court in the Northern District of Ohio in Akron. This development probably comes as no surprise given FirstEnergy's previously announced plans to exit the competitive generation business and following on the heels of recent deactivation notices for FENOC's nuclear plants and of course, the FES 202(c) application to DOE.

The attached press release provides quite a bit of information but I'd like to highlight a few key points:

- FirstEnergy and our other subsidiaries, including all of our regulated utilities, are NOT part of the Chapter 11 filing.
- All competitive generation units under FES and FENOC are part of the filing. They include:
  - Combustion turbine: West Lorain
  - Nuclear units: Perry, Beaver Valley, Davis-Besse
  - Supercritical coal: Sammis Units 5-7, and Bruce Mansfield
- FirstEnergy's subsidiary Allegheny Energy Supply (AE Supply), which owns the Pleasants Power Station, is not included in the Chapter 11 filing. AE Supply still plans to sell the Pleasants plant or deactivate it by January 1, 2019.
- All of FirstEnergy's distribution, transmission and regulated generation businesses will continue to operate as usual during the Chapter 11 process, and service to our customers will continue uninterrupted.

If you have any questions or would like further details, I'd be glad to follow up.

Best,
Colin

Colin Mount
Director, Federal Regulatory Affairs
801 Pennsylvania Avenue NW, Suite 310
Washington, DC 20004
202-434-8154 office
(b) (6) cell

FirstEnergy

AMERICAN OVERSIGHT

**The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.**

AMERICAN OVERSIGHT

**From:** Robert Thormeyer
**To:** Anthony Pugliese; Laura Swett
**Subject:** from UTC--Thank you
**Date:** Friday, April 20, 2018 3:04:10 PM
**Attachments:** UTC_Utility Network Baseline.pdf

---

Anthony, Laura,

Thank you for spending some time with us this morning to discuss the challenges facing utility communications systems. Per our discussion I've attached our Network Baseline Survey, which is a level-set report detailing the kinds of communications systems utilities have and what they use them for. This document is a reference and does not make any policy recommendations.

Additionally, here's a few more issue briefs going into more specifics regarding spectrum bands.

6 GHz https://utc.org/wp-content/uploads/2018/02/Microwave-Systems-in-the-6-GHz-Band-November-2017-.pdf
4.9 GHz https://utc.org/wp-content/uploads/2018/04/2018_01_IssueBrief_4.9_GHz_April_2018_Update.pdf
406-420 GHz https://utc.org/wp-content/uploads/2018/03/2018_03_IssueBrief_406-420_MHz.pdf

Please let us know if you have any additional questions. We appreciated your time and advice. We look forward to being in touch.

Rob

**Rob Thormeyer | Director of Communications and Advocacy**
**UTILITIES TECHNOLOGY COUNCIL**
Direct: +1. 202.833.6804 | Mobile: (b) (6)
rob.thormeyer@utc.org
utc.org | networks.utc.org | @UTC_Policy
1129 20th Street, N.W. | Suite 350 | Washington, D.C. 20036 USA

AMERICAN OVERSIGHT

**From:** James Danly
**To:** Anthony Pugliese
**Subject:** FW: Civil Nuclear Strategic Framework
**Date:** Friday, April 6, 2018 12:25:59 PM

---

FYI

---

**From:** Moran, John S. EOP/WHO [mailto:John.S.Moran@who.eop.gov]
**Sent:** Tuesday, April 03, 2018 3:30 PM
**To:** James Danly <James.Danly@ferc.gov>
**Subject:** Civil Nuclear Strategic Framework

James,

To follow up on our conversation, White House staff would like to invite Chairman McIntyre to an upcoming meeting regarding the Civil Nuclear Strategic Framework, which will be led by the National Security Council and National Economic Council. Chairman Svinicki of the Nuclear Regulatory Commission is also expected to attend. And folks have been advised that the discussions should be neutral as to any policy that might fall with FERC or NRC's jurisdiction; the purpose of inviting the Chairmen is to ensure that they have an opportunity to offer their expertise as the White House develops its strategic plan.

Regards,

John S. Moran
Associate Counsel to the President
202-456-1908 (w)
(b) (6) (c)

AMERICAN OVERSIGHT

**From:** Tracy Adamsky
**To:** Anthony Pugliese
**Subject:** FW: Invitation to special Summit-related meeting; Wednesday June 27, 2018
**Date:** Tuesday, April 24, 2018 3:24:16 PM
**Attachments:** CPIC Whitepaper.pdf
Pugliese CPIC Invitation 4 24 18 .pdf

---

Hi Anthony,

I got a call from Chris Beck at EIS. He said you were registered to attend the summit in June in London. Apparently they are adding a third day and would like you to participate on that third day. Please take a look at the attached materials. Let me know if you need me to make travel arrangements.

Tracy

**From:** Chris Beck [mailto:chris.beck@eiscouncil.org]
**Sent:** Tuesday, April 24, 2018 3:16 PM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Kelly Cullinane <kelly.cullinane@eiscouncil.org>
**Subject:** Invitation to special Summit-related meeting; Wednesday June 27, 2018

Hi Ms. Adamsky,

Good to talk to you a moment ago. As we briefly discussed I wanted to follow up with you to inform you that, as an outgrowth of discussions at the EPRO Electric Sector meeting in Israel in late February, we are convening a special, invitation-only inaugural meeting of the Cyber Product International Certification (CPIC) Commission in London, as a third day of EIS Summit IX. A whitepaper on CPIC is attached, as well as an invitation for Mr. Pugliese.

We hope that it might be possible for Mr. Pugliese to attend this important discussion on June 27th, 2018, following the main Summit proceedings on June 25-26, 2018.

Kelly Cullinane (cc'd) our Summit Coordinator and I are available to assist you with any questions you might have. We were able to extend the Summit hotel block to accommodate the meeting, so if you have already reserved a room, for example, we can assist there. Please advise, and thank you very much.

Very Best Regards,
Chris

**Chris Beck**
**Electric Infrastructure Security Council**
**p:** (b) (6)
**f:** 202-289-6539
**e:** chris.beck@eiscouncil.org

AMERICAN OVERSIGHT

**From:** Herrgott, Alex H. EOP/CEQ
**To:** Anthony Pugliese
**Subject:** FW: INVITE | S-3 Public Affairs Anniversary Party | Thursday, April 26th
**Date:** Tuesday, April 10, 2018 10:03:52 AM
**Attachments:** image002.png
S-3 Public Affairs 2018 Anniversary Party Invite.png

---

**From:** Mike Ference <ference@s-3group.com>
**Sent:** Tuesday, April 10, 2018 9:18 AM
**To:** Mike Ference <ference@s-3group.com>
**Subject:** [EXTERNAL] INVITE | S-3 Public Affairs Anniversary Party | Thursday, April 26th

I'd like to extend an invitation to you to attend the S-3 Public Affairs Anniversary Party on **Thursday, April 26th beginning at 5:30 PM at Stanton & Greene** (Invite below and attached).

This event is fully compliant with federal ethics laws and regulations, including the Congressional gift ban, so that Representatives, Senators, and staff can attend!

Please send your responses to **RSVP@S3PublicAffairs.com**, and feel free to reach out with any questions. We hope to see you there.

Thank you!

AMERICAN OVERSIGHT




AMERICAN OVERSIGHT

**From:** Nicholas Gladd
**To:** Kevin McIntyre; Anthony Pugliese
**Cc:** Martin Kirkwood
**Subject:** FW: ISO-NE memo on Exelon and fuel security
**Date:** Tuesday, April 3, 2018 4:00:46 PM
**Attachments:** 4-3 Memo Immediate and NearTerm Fuel Security.pdf

---

FYI, attached is a brief update from ISO-NE on fuel security matters.

---

**From:** Hepper, Raymond [mailto:rhepper@iso-ne.com]
**Sent:** Tuesday, April 03, 2018 3:39 PM
**To:** Nicholas Gladd <Nicholas.Gladd@ferc.gov>; Martin Kirkwood <Martin.Kirkwood@ferc.gov>; Andrew Weinstein <Andrew.Weinstein@ferc.gov>; Mindi Sauter <Mindi.Sauter@ferc.gov>; Brian George <Brian.George@ferc.gov>; Pamela Quinlan <Pamela.Quinlan@ferc.gov>; Matthew Christiansen <Matthew.Christiansen@ferc.gov>; Anna Cochrane <Anna.Cochrane@ferc.gov>; Jette Gebhart <Jette.Gebhart@ferc.gov>; Kurt Longo <Kurt.Longo@ferc.gov>; Leanne Khammal <Leanne.Khammal@ferc.gov>; Arnie Quinn <Arnie.Quinn@ferc.gov>; Jignasa Gadani <Jignasa.Gadani@ferc.gov>; David Morenoff <David.Morenoff@ferc.gov>; Lawrence Greenfield <Lawrence.Greenfield@ferc.gov>; Eric Jacobi <Eric.Jacobi@ferc.gov>
**Cc:** Gulluni, Maria <mgulluni@iso-ne.com>
**Subject:** ISO-NE memo on Exelon and fuel security

All,
I hope there is no protocol that I am breaching by sending a mass email, but having spoken to each of you on this matter and saving myself time, attached is a memo that we just sent to the NEPOOL Participants and states on the Exelon situation.
Please let us know if you have any immediate questions.
Thanks,
Ray

Raymond Hepper
Vice President, General Counsel & Corporate Secretary
ISO New England Inc.
One Sullivan Road
Holyoke, MA 01040
Tel: 413-540-4592
Cell: (b) (6) [redacted]
E-mail rhepper@iso-ne.com

AMERICAN OVERSIGHT

**From:** David Ortiz
**To:** Joseph McClelland; Sandra Waldstein; Jehmal Hudson; Anthony Pugliese
**Cc:** Leonard Tao
**Subject:** RE: Lexington Institute -- Cybersecurity of the Electric Grid Capitol Hill Forum - 6.8.18
**Date:** Wednesday, April 4, 2018 11:28:11 AM

Thanks Joe and Sandie,

We may have a team member attend too.

Thanks, David

**From:** Joseph McClelland
**Sent:** Wednesday, April 04, 2018 10:31 AM
**To:** Sandra Waldstein <Sandra.Waldstein@ferc.gov>; Jehmal Hudson <Jehmal.Hudson@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>; David Ortiz <David.Ortiz@ferc.gov>
**Cc:** Leonard Tao <Leonard.Tao@ferc.gov>
**Subject:** RE: Lexington Institute -- Cybersecurity of the Electric Grid Capitol Hill Forum - 6.8.18

Thanks Sandie!

**From:** Sandra Waldstein
**Sent:** Wednesday, April 04, 2018 10:17 AM
**To:** Joseph McClelland <Joseph.McClelland@ferc.gov>; Jehmal Hudson <Jehmal.Hudson@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>; David Ortiz <David.Ortiz@ferc.gov>
**Cc:** Leonard Tao <Leonard.Tao@ferc.gov>
**Subject:** RE: Lexington Institute -- Cybersecurity of the Electric Grid Capitol Hill Forum - 6.8.18

Joe,
I'll talk with Jehmal about this. I noticed they were both speaking.

You and I will be out in Boise on the 7th so I've asked Cameron to cover this.

Thanks,
Sandie

*Sandra Waldstein*
*Director, Division of State, International & Public Affairs*
*Office of External Affairs*
*Federal Energy Regulatory Commission*
*202-502-8092*
*sandra.waldstein@ferc.gov*

**From:** Joseph McClelland
**Sent:** Wednesday, April 04, 2018 10:13 AM

AMERICAN OVERSIGHT

**To:** Jehmal Hudson <Jehmal.Hudson@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>; David Ortiz <David.Ortiz@ferc.gov>; Sandra Waldstein <Sandra.Waldstein@ferc.gov>
**Cc:** Leonard Tao <Leonard.Tao@ferc.gov>
**Subject:** RE: Lexington Institute -- Cybersecurity of the Electric Grid Capitol Hill Forum - 6.8.18

Thanks Jehmal – as you are aware, we have worked extensively with both President Mroz and Commissioner Pickett. Adding Sandie for any thoughts she might have.
Joe

---

**From:** Jehmal Hudson
**Sent:** Wednesday, April 04, 2018 10:10 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>; David Ortiz <David.Ortiz@ferc.gov>; Joseph McClelland <Joseph.McClelland@ferc.gov>
**Cc:** Leonard Tao <Leonard.Tao@ferc.gov>
**Subject:** FW: Lexington Institute -- Cybersecurity of the Electric Grid Capitol Hill Forum - 6.8.18

FYI –

Please note that the New Jersey Public Board of Utilities and the Alaska Regulatory Commission will be speakers at this event.

Jehmal

---

**From:** muralidharan@lexingtoninstitute.org [mailto:muralidharan@lexingtoninstitute.org]
**Sent:** Wednesday, April 04, 2018 9:28 AM
**To:** muralidharan@lexingtoninstitute.org
**Subject:** Lexington Institute -- Cybersecurity of the Electric Grid Capitol Hill Forum - 6.8.18

***From: Merrick Carey***
***Re: Cybersecurity of the Electric Grid Capitol Hill Forum – 6.8.18***

The Lexington Institute is hosting a Cybersecurity of the Electric Grid Capitol Hill Forum on Friday, June 8th at 12pm. ***We hope you will be able to join us.***

**Speakers to date include:**
Mr. Bryson Bort, Founder and Chief Executive Officer, SCYTHE
Mr. Cade Burks, Chief Digital Officer, Big Data Energy
Ms. Constance Douris, Vice President, Lexington Institute
Mr. Pete Fischer, Director, Sierra Nevada Corporation
Mr. Sean M. Griffin, Senior Manager, Electricity Information Sharing and Analysis Center
Mr. Stewart Kantor, Chief Executive Officer, Full Spectrum
Mr. Robert K. Knake, Senior Research Scientist, Global Resilience Institute
Mr. Jim McCarthy, Senior Security Engineer, National Institute of Standards

AMERICAN OVERSIGHT

and Technology
Mr. Richard Mroz, President, New Jersey Board of Public Utilities
Mr. Bob Pickett, Commissioner, Regulatory Commission of Alaska
Mr. Daniel Riedel, Chief Executive Officer and Board Director, New Context

If a mass power outage were to result from a cyberattack on the electric grid, national security and economic stability would be threatened. This is because hospitals, banks, factories, pipelines, financial networks, water systems, telecommunications and military bases cannot function without electricity. Ukraine is an example of a country that had to shut down its grid twice due to a cyberattack. Just last year, a virus called Industroyer, also known as "Crash Override," was discovered that aims to damage equipment on the electric grid by turning off power, creating rolling blackouts or causing physical destruction. This virus is one example of a potential threat to all substations and circuit breakers which are largely standardized across the world.
Operators of the grid need tools to detect and correct malicious threats in networks before they cause serious damage to the electric system and critical infrastructure. Policymakers and industry need to collectively implement effective strategies so that citizens do not have to worry about cyber threats compromising electricity access.
This forum will be a series of ten-minute back-to-back presentations delivered by subject matter experts. Here is a link to a similar event we hosted last year.
Please contact Ms. Rathna Muralidharan if you are able to attend on June 8th via email at muralidharan@lexingtoninstitute.org or by phone at 703-522-5828.

***Lexington Institute***
***Cybersecurity of the Electric Grid***
***Capitol Hill Forum***
***Friday, June 8, 2018***
***U.S. Capitol Visitor Center 201AB***
***East Capitol Street and 1st Street, NE***
***Washington, DC 20003***
***12-3pm***
***(Lunch will be served)***

AMERICAN OVERSIGHT

Ms. Rathna K. Muralidharan
Program Director
Lexington Institute
1600 Wilson Boulevard
Suite 203
Arlington, VA 22209
Main: 703-522-5828
muralidharan@lexingtoninstitute.org

AMERICAN OVERSIGHT

**From:** Tracy Adamsky
**To:** Anthony Pugliese
**Subject:** FW: Meeting request from the Northern California Power Agency
**Date:** Tuesday, April 10, 2018 11:47:11 AM
**Attachments:** NCPA Chairman McIntyre meeting request April 2018.doc
NCPA bios for FERC April 2018 meetings.docx

---

Hi Anthony,

We got this request from the Northern California Power Agency. It was only sent to (b) (6) and so it didn't make it onto my list for yesterday's scheduling meeting. I already told them that he is not available on the 17th or 18th and they are now wondering if they could meet with the advisors. Thoughts?

Tracy

---

**From:** Steve Colen
**Sent:** Monday, April 02, 2018 2:29 PM
**To:** (b) (6)
**Subject:** Meeting request from the Northern California Power Agency

Attached is a meeting request letter from members of NCPA who will be in D.C. in mid- April for their yearly policy forum. Members are hoping to meet with Chairman McIntyre on either Tuesday, April 17th or Wednesday, April 18th.

We understand that the Chairman and Commissioners will be testifying on the morning of April 17th. Hopefully, there may be some time that afternoon or anytime the next day for a meeting. We do have a meeting scheduled w/ Commissioner Glick on April 17th at 3:30pm

As noted in the letter, I am the contact person for scheduling the meeting and I can be reached either via this email or at (202) 624-3500.

Also attached are bios of those expected to attend the meeting.

Thank you for your consideration and I hope to hear from you at your earliest convenience.

Stephen J. Colen
Office Administrator
Kanner & Associates, LLC
400 North Capital Street, N.W.
Suite 594
Washington, D.C. 20001
P: (202) 624-3500
F: (202) 624-3506

AMERICAN OVERSIGHT

http://www.kannerandassoc.com

**Disclaimer**
The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorized to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

This email has been scanned for viruses and malware, and may have been automatically archived by **Mimecast Ltd**, an innovator in Software as a Service (SaaS) for business. Providing a **safer** and **more useful** place for your human generated data. Specializing in; Security, archiving and compliance. To find out more Click Here.

AMERICAN OVERSIGHT

**From:** James Danly
**To:** Anthony Pugliese
**Subject:** FW: Requesting Meeting to Discuss DOE Matter
**Date:** Thursday, April 12, 2018 3:44:10 PM

I am out Wed-Fri next week. Monday would be the best day for me in the PM.

**From:** Glazer, Craig [mailto:Craig.Glazer@pjm.com]
**Sent:** Thursday, April 12, 2018 3:37 PM
**To:** James Danly <James.Danly@ferc.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Cc:** Schuhart, Denise <schuhart@wrightlaw.com>
**Subject:** Requesting Meeting to Discuss DOE Matter

James and Anthony:

We've had some discussions with DOE on possible alternative approaches they could take to simply adopting the requested 202 c relief. As these obviously involve FERC and as I want to make sure you all are comfortable with these still very preliminary concepts, I am writing to see if you'd be willing to meet with me so I can brief you on what we've been thinking about.

I would be available to meet either Wednesday or Thursday of next week after the Commission meeting recognizing that this is quite a busy week for you all with the testimony set for Tuesday and the Commission meeting on Thursday.

If there are others on Staff that you think would be helpful to the meeting or that I should reach out to separately, please let me know.

Craig Glazer
PJM
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

**From:** Anna Cochrane
**To:** Anthony Pugliese
**Subject:** FW: SPP Letter to MISO
**Date:** Thursday, April 5, 2018 9:13:03 AM
**Attachments:** Moeller Letter to SPP Joint Parties.pdf

FYI – response to previous email from MISO. The letters mention that SPP is going to reach out to FERC to discuss.

*Anna Cochrane*

**From:** Derek Bandera [mailto:dbandera@misoenergy.org]
**Sent:** Wednesday, April 04, 2018 7:56 PM
**To:** Anna Cochrane <Anna.Cochrane@ferc.gov>
**Cc:** Penny Murrell <Penny.Murrell@ferc.gov>; Christopher Miller <Christopher.Miller@ferc.gov>; Patrick Clarey <Patrick.Clarey@ferc.gov>
**Subject:** Re: SPP Letter to MISO

Anna,

I understand you were cc'ed on an email containing a letter from SPP to MISO . I wanted to be sure you had a copy of Clair Moeller's letter to SPP and "Joint Parties" and voicing our strong disagreement with the views expressed by David Patton last week at our Board Meetings and expressing our appreciation for our continued collaboration with SPP and the "Joint Parties". We held a constructive meeting with representatives of the "Joint Parties" in Little Rock, AR on March 15, 2018, and mutually committed to a thorough review of the events of January 17th to determine key lessons learned, particularly in the areas of outage coordination, real-time communication, operation assumptions, and access to Load Modifying Resources.

While I wasn't at the Board Meeting last week, those there have indicated to me that MISO Board Chairman Curran was very much misquoted in the referenced RTO Insider article. I understand Chairman Curran did make comments regarding the relative importance of "keeping the lights" on over constraints imposed by a contractual limits rather than actual limits of transmission availability. The misquote is quite unfortunate. We are in the process of following up on that matter.

Feel free to let me know if there are any questions that we can be helpful with or follow up on with you.

Thanks,

-Derek

Begin forwarded message:

AMERICAN OVERSIGHT

**From:** Shaun Scott <smscott@spp.org>
**Date:** April 4, 2018 at 4:41:09 PM EDT
**To:** "'jbear@misoenergy.org'" <jbear@misoenergy.org>
**Cc:** "'Kevin.McIntyre@FERC.gov'" <Kevin.McIntyre@FERC.gov>, "'Cheryl.LaFleur@FERC.gov'" <Cheryl.LaFleur@FERC.gov>, "'Neil.chatterjee@FERC.gov'" <Neil.chatterjee@FERC.gov>, "'Robert.Powelson@FERC.gov'" <Robert.Powelson@FERC.gov>, "'Richard.Click@FERC.gov'" <Richard.Click@FERC.gov>, "'Anna.Cochrane@FERC.gov'" <Anna.Cochrane@FERC.gov>, "'David.Ortiz@FERC.gov'" <David.Ortiz@FERC.gov>, "'James.Danly@FERC.gov'" <James.Danly@FERC.gov>, "'David.Morenoff@FERC.gov'" <David.Morenoff@FERC.gov>, "'Jim.Robb@NERC.net'" <Jim.Robb@NERC.net>, "'Mark.Lauby@NERC.net'" <Mark.Lauby@NERC.net>, "'woball@southernco.com'" <woball@southernco.com>, "'cmoeller@misoenergy.org'" <cmoeller@misoenergy.org>, "'gary.smith@powersouth.com'" <gary.smith@powersouth.com>, "'billjohnson@TVA.gov'" <billjohnson@TVA.gov>, "'dtudor@aeci.org'" <dtudor@aeci.org>, "'tom.jessee@lge-ku.com'" <tom.jessee@lge-ku.com>
**Subject: [EXT] SPP Letter to MISO**

**External E-mail:** Please be cautious and evaluate before you click on links, open attachments, or provide credentials or data.

---

Dear Mr. Bear,

Attached you will find a letter from Nick Brown, President & CEO of Southwest Power Pool regarding reliability challenges that the South Central U.S. faced on January 17, 2018.

Sincerely,

Shaun Scott | Assistant Corporate Secretary | smscott@spp.org | O-501.482.2524 | (b) (6)

201 Worthen Drive * Little Rock, AR 72223-4936
**Southwest Power Pool** | SPP.org | twitter.com/SPPorg | facebook.com/SouthwestPowerPool
*Helping our members work together to keep the lights on...today and in the future*

This email and any attachments are for the sole use of the intended recipient(s) and may contain confidential information. If you receive this email in error, please notify the sender, delete the original and all copies of the email and destroy any other hard copies of it.

AMERICAN OVERSIGHT

**From:** David Morenoff
**To:** Anthony Pugliese
**Cc:** James Danly
**Subject:** Fwd: FirstEnergy Solutions (FES) and FirstEnergy Nuclear Operating Company (FENOC) file Chapter 11
**Date:** Sunday, April 1, 2018 8:04:13 PM
**Attachments:** image001.png
ATT00001.htm
2018-03-31 FE"s Transformation to Fully Regulated Utility Company Moves Ahead.pdf
ATT00002.htm

---

Forwarding in case you did not receive this message separately ...

Sent from my iPad

Begin forwarded message:

**From:** "Mount, Colin" <cmount@firstenergycorp.com>
**Date:** April 1, 2018, 12:36:38 PM EDT
**To:** "Anna Cochrane (anna.cochrane@ferc.gov)" <anna.cochrane@ferc.gov>, "Kurt Longo" <kurt.longo@ferc.gov>, "James Danly (james.danly@ferc.gov)" <james.danly@ferc.gov>, David Morenoff <david.morenoff@ferc.gov>, "david.ortiz@ferc.gov" <david.ortiz@ferc.gov>, Arnie Quinn <arnie.quinn@ferc.gov>, "Jignasa Gadani (jignasa.gadani@ferc.gov)" <jignasa.gadani@ferc.gov>, Leonard Tao <Leonard.Tao@ferc.gov>
**Subject: FirstEnergy Solutions (FES) and FirstEnergy Nuclear Operating Company (FENOC) file Chapter 11**

Please excuse the intrusion on this holiday weekend but I wanted to pass along some timely information.

Late last night, FirstEnergy Solutions (FES), all of its subsidiaries and FirstEnergy Nuclear Operating Company (FENOC) voluntarily filed petitions under Chapter 11 of the Federal Bankruptcy Code with the U.S. Bankruptcy Court in the Northern District of Ohio in Akron. This development probably comes as no surprise given FirstEnergy's previously announced plans to exit the competitive generation business and following on the heels of recent deactivation notices for FENOC's nuclear plants and of course, the FES 202(c) application to DOE.

The attached press release provides quite a bit of information but I'd like to highlight a few key points:

- FirstEnergy and our other subsidiaries, including all of our regulated utilities, are NOT part of the Chapter 11 filing.
- All competitive generation units under FES and FENOC are part of the filing. They include:
  - Combustion turbine: West Lorain
  - Nuclear units: Perry, Beaver Valley, Davis-Besse
  - Supercritical coal: Sammis Units 5-7, and Bruce Mansfield
- FirstEnergy's subsidiary Allegheny Energy Supply (AE Supply), which owns the Pleasants Power Station, is not included in the Chapter 11 filing. AE Supply still plans to sell the Pleasants plant or deactivate it by January 1, 2019.

AMERICAN OVERSIGHT

- All of FirstEnergy's distribution, transmission and regulated generation businesses will continue to operate as usual during the Chapter 11 process, and service to our customers will continue uninterrupted.

If you have any questions or would like further details, I'd be glad to follow up.
Best,
Colin

Colin Mount
Director, Federal Regulatory Affairs
801 Pennsylvania Avenue NW, Suite 310
Washington, DC 20004
202-434-8154 office
(b) (6) cell

AMERICAN OVERSIGHT

**From:** Glazer, Craig
**To:** Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anna Cochrane; Anthony Pugliese; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; (b) (6) ; Brett Rendina; (b) (6) Cameron Schilling; Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; Craig Cano; (6) Daniel Nowak; David Andrejcak; David Morenoff; David Ortiz; Elizabeth Salerno; Eric Krall; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; Janel Burdick; (b) (6) Jessica Cockrell; Jette Gebhart; Jignasa Gadani; (b) (6) Joseph McClelland; Kathleen Benard; Kevin McIntyre; (b) (6) Larry Parkinson; LaShawn Dickens; Laura Swett; Lawrence Greenfield; Leonard Tao; (b) (6) Lindsee Gentry; (b) (6) Martin Kirkwood; Mary O"Driscoll; Matthew Christiansen; Meghan Estenson; (b) (6) ; Mindi Sauter; (b) (6) ; Neil Chatterjee; Nicholas Gladd; (b) (6) Rich Glick; Richard O"Neill; Rikardo Hull; Robert F. Powelson; Robert Ross; Roger Morie; Sandra Waldstein; (b) (6) ; Steven Wellner; Tracy Adamsky; (b) (6)
**Cc:** Glazer, Craig; Burdis, Timothy; Schuhart, Denise
**Subject:** FYI: PJM Response to NETL Report to DOE on Cold Snap
**Date:** Friday, April 13, 2018 4:26:26 PM
**Attachments:** FINAL - 20180413 - PJM Response to NETL.pdf

---

Good afternoon. PJM prepared a response to the NETL Report which we filed with DOE today. A courtesy copy is attached for your convenience.

**CRAIG GLAZER**
Vice President-Federal Government Policy
PJM Interconnection, LLC—D.C. Office

Suite 600
1200 G Street, N.W.
Washington, D.C. 20005
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

**From:** Glazer, Craig
**To:** Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anna Cochrane; Anthony Pugliese; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Bikash Thapliya; Brett Rendina; Brian George; Cameron Schilling; Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; Craig Cano; Daniel Nowak; David Andrejcak; David Morenoff; David Ortiz; Elizabeth Salerno; Eric Krall; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; Janel Burdick; Jehmal Hudson; Jennifer Fletcher; Jesse Hensley; Jessica Cockrell; Jette Gebhart; Jignasa Gadani; John Karp; John Peschke; John Sillin - OE; Jonathan Fernandez; Jonathan First; Jorge Moncayo; Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kris Fitzpatrick; Kristen Fleet; Kurt Longo; Larry Parkinson; LaShawn Dickens; Laura Swett; Lawrence Greenfield; Leonard Tao; Leslie Kerr; Lindsee Gentry; Maria Vouras; Mark Hegerle; Martin Kirkwood; Mary O"Driscoll; Matthew Christiansen; Meghan Estenson; Michael Goldenberg; Michael P. McLaughlin; Michelle R. Brown; Mindi Sauter; Nancy Bowler; Neil Chatterjee; Nicholas Gladd; Kumar Agarwal; Pamela Quinlan; Patricia Smith; Peter Rolashevich; Rich Glick; Richard O"Neill; Rikardo Hull; Robert F. Powelson; Robert Ross; Roger Morie; Sandra Waldstein; Sarah Crawford; Scott Everngam; Steven Michals; Steven Reich; Steven Wellner; Tracy Adamsky; Tristan Cohen; Valerie Martin; Vinay Tripathi
**Cc:** Glazer, Craig; Burdis, Timothy; Schuhart, Denise
**Subject:** FYI: PJM Response to NETL Report to DOE on Cold Snap
**Date:** Friday, April 13, 2018 4:26:26 PM
**Attachments:** FINAL - 20180413 - PJM Response to NETL.pdf

---

Good afternoon. PJM prepared a response to the NETL Report which we filed with DOE today. A courtesy copy is attached for your convenience.

**CRAIG GLAZER**
Vice President-Federal Government Policy
PJM Interconnection, LLC—D.C. Office

Suite 600
1200 G Street, N.W.
Washington, D.C. 20005
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

**From:** Moeller, Phil
**To:** Anthony Pugliese
**Cc:** Murray, Jennifer
**Subject:** Invitation to Gee Strategies Event
**Date:** Monday, April 16, 2018 3:25:08 PM
**Attachments:** S43118041612080.pdf
WSD Confirmed Commissioners Staff 040718.docx
2018 DRAFT WSD Agenda_04 16 18.doc

---

Hello Anthony,

Thanks again for your quick response last week; DOJ went ahead and filed the brief. We'll keep you updated.

Please see the attached letter inviting you to speak at the Gee Strategies event in New York City. It's a great group and I know they would appreciate hearing from you if it works with your schedule.

Good luck this week,

Phil

AMERICAN OVERSIGHT

| | |
|---|---|
| **From:** | Gerard, Kegan (CONTR) |
| **To:** | Kevin McIntyre |
| **Cc:** | Anthony Pugliese; Tracy Adamsky; James McGlone; Kumar, Puesh; Duncan, Matthew D; Andrew Dodge |
| **Subject:** | Invitation: ESCC Meeting on May 7 |
| **Date:** | Wednesday, April 11, 2018 1:22:42 PM |
| **Attachments:** | Clearance Form for Meetings at DOE.PDF<br>Instructions for Passing a Security Clearance to DOE.PDF |

Dear Chairman McIntyre,

On behalf of the U.S. Department of Energy, I invite you to attend the Joint Industry-Government Electricity Subsector Coordinating Council (ESCC) Meeting on May 7, 2018 in Washington, D.C. Participants will discuss a range of topics related to improving the cyber and physical security within the electricity subsector. **This meeting is by invitation-only and we request that only one representative and one support staff member from each organization participate.**

Please see below and attached for the corresponding logistical information and RSVP instructions.

**RSVP:** Email Kegan.Gerard@hq.doe.gov by April 25, 2018 to confirm attendance

**Date:** May 7, 2018

**Location:** U.S. Department of Energy – Forrestal
1000 Independence Ave, SW
Washington, D.C. 20585

**Tentative Schedule:**

| | |
|---|---|
| 12:00 PM | Arrival at DOE Headquarters |
| 12:30 PM – 1:45 PM | Classified and FOUO Briefings |
| 2:00 PM – 5:00 PM | Joint Government-Industry ESCC Meeting |

**Please have your clearance transferred no later than April 25, 2018, to attend the classified brief portion of the meeting.** The classified briefing will be held at the SECRET level.

The agenda, read ahead documents, and any additional logistical information will be sent in a follow up message prior to the meeting. For any questions regarding the meeting, please contact Kegan.Gerard@hq.doe.gov.

Respectfully,

**Puesh M. Kumar**
Director, Infrastructure Security and Energy Restoration
Office of Electricity Delivery and Energy Reliability
U.S. Department of Energy
Desk: 202-586-9600
Email: Puesh.Kumar@hq.doe.gov

AMERICAN OVERSIGHT

**From:** Stewart, Jackie
**To:** Anthony Pugliese
**Subject:** Longview Power Tour Invite
**Date:** Monday, April 9, 2018 5:11:22 PM
**Attachments:** LONGVIEW POWER WV GA FACT SHEET 2017 (2).pdf

---

Hi Anthony,

Thank you again for making room in your schedule a few months back to briefly meet with Longview Power. I know it was a crazy day that day as the Chairman was being sworn in but wanted to circle back with you and extend and invite to you and the Chairman for a tour of the Longview Power plant in West Virginia.

Would love to host you all, if you schedule permits.

Thanks for any and all consideration here.

Hope to hear from you soon!

**Jackie Stewart**
Managing Director
Energy & Natural Resources | Strategic Communications

**FTI Consulting**
+1.614.282.9127 T | (b) (6) [redacted] M
jackie.stewart@fticonsulting.com
www.fticonsulting.com

**Confidentiality Notice:**
This email and any attachments may be confidential and protected by legal privilege. If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the e-mail or any attachment is prohibited. If you have received this email in error, please notify us immediately by replying to the sender and then delete this copy and the reply from your system. Thank you for your cooperation.

AMERICAN OVERSIGHT

**From:** Glazer, Craig

**To:** Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anthony Pugliese; Anton Porter; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Brett Rendina; Brian George; Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; Daniel Nowak; David Morenoff; David Ortiz; Elizabeth Salerno; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; (b) (6) Jessica Cockrell; Jette Gebhart; Jignasa Gadani; John Shepherd; (b) (6) ; Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kimberly Bose; Kris Fitzpatrick; Kurt Longo; Larry Parkinson; LaShawn Dickens; Laura Swett; Leonard Tao; Leslie Kerr; Lindsee Gentry; Matthew Christiansen; Meghan Estenson; (b) (6) ; Michelle R. Brown; Mindi Sauter; Neil Chatterjee; Nicholas Gladd; Nils Nichols; Pamela Quinlan; Patricia Smith; (b) (6) ; Rich Glick; Rikardo Hull; Robert F. Powelson; Robert Ross; Steven Wellner; Tracy Adamsky; Travis Fisher; Bryson, Mike E.; Bresler, Frederick S. (Stu) III

**Subject:** Meeting with PJM and FERC Staff to Review Results of PJM Nuclear Plant Retirement Analysis and PJM Fuel Security Initiative

---

Based on the doodle poll, I am offering up this one hour slot for an in-person meeting (with a phone option) for PJM to brief FERC Staff on the announcement we are making on Monday re: our analysis of the First Energy nuclear plant retirements as well as our fuel security initiative that we are announcing as well.
We have briefed the Commissioner offices so feel free to attend. In addition, we are attempting through this meeting to reach out to various FERC offices. Feel free to forward to Staff members in your department.
I will work to provide you with the materials from our announcement on Monday prior to our call.
Any problems, call Craig Glazer on cell at (b) (6)

AMERICAN OVERSIGHT

**From:** Derek Bandera
**To:** Kevin McIntyre; Cheryl LaFleur; Neil Chatterjee; Robert F. Powelson; Rich Glick; Anthony Pugliese; Anna Cochrane; Jette Gebhart; Caroline Wozniak; Penny Murrell; Michael Donnini; Natalie Tingle-Stewart; Adam Pollock; James Danly; David Morenoff; Deborah Leahy; Roshini Thayaparan; Martin Kirkwood; Maria Farinella; John Shepherd Jr.; Arnie Quinn; Jignasa Gadani; David Ortiz; Joseph McClelland; David Andrejcak; Leonard Tao; Sandra Waldstein; Cameron Schilling; Christy Walsh; Leslie Kerr; Becky Robinson; Michael P. McLaughlin; Christopher Miller; Patrick Clarey; Larry Parkinson; Eric Krall; Nancy Bowler; Melissa Lozano; Angelo Mastrogiacomo; Anne Marie Hirschberger; John Karp; Emma Nicholson; Alan Haymes; Travis Fisher
**Cc:** Carolyn Clarkin; Angela Amos; Laura Swett; Nicholas Gladd; Tracy Adamsky; Steven Wellner; Andrew Weinstein; Jessica Cockrell; Catherine Giljohann; Kristopher.FitzPatrick@ferc.gov; Andrew Holleman; Andrea Spring; Mindi Sauter; Eric Vandenberg; Robert Ross; Lindsee Gentry; April Ballou; Brett Rendina; Rikardo Hull; Brian George; Meghan Estenson; Erica Siegmund Hough; Pamela Quinlan; Elizabeth Salerno; Matthew Christiansen; Benjamin Williams
**Subject:** MISO 2018-9 Planning Reserve Auction Results
**Date:** Thursday, April 12, 2018 6:13:02 PM
**Attachments:** image001.png
2018_19_PRA_ResultsRelease041218_final.pdf

---

Good evening,

MISO has just released the results of the Planning Resource Auction for the planning year beginning June 1, 2018. The auction provides one mechanism through which MISO Load-Serving Entities (LSEs) can procure capacity resources to cover their obligations for the MISO Planning Reserve Margin Requirement. The vast majority of the of the MISO footprint (Zones 2-10) cleared at $10/MW-day. Zone 1 (predominately composed of MISO's North region, that includes Minnesota, Western Wisconsin, the Dakotas and Montana) cleared at $1/MW-day. A total of 135,179 megawatts (MW) of planning resources were committed to meet forecasted demand plus the region-wide Planning Reserve Margin (17.1% Installed Capacity) for the 2018/19 planning year.

Auction results reflect an adequate availability of resources for the upcoming Planning Year and the grid's capability to effectively transfer resources among zones. A map illustrating the zones and prices is copied below and the posted results presentation is attached.

MISO's Independent Market Monitor has reviewed the results and certified that the auction was properly administered. The IMM reviews all offers to ensure that attempts to exercise market power are appropriately mitigated. No offers were mitigated by the IMM in this auction.

The price distribution across the MISO footprint differs from last year's results, when the footprint cleared at a single price ($1.50/MW-day). The generally higher prices were driven by a combination of modest changes in three factors. Specifically, an increase in the planning reserve margin requirement, a decrease in supply and changes in market participant offer behavior. The MISO footprint saw the continued growth of non-traditional resources to meet capacity needs. Compared with last year's results, the PRA cleared about 1,600 MW of additional demand response, energy efficiency and behind-the-meter generation. These resources represent about 11,000 MW – 8 percent – of total resources.

Resources Distribution

Cleared planning resources from the auction included:

- 120,855 MW of Generation Resources,
- 4,098 MW of Behind-the-Meter Generation,
- 6,964 MW of Demand Resources,
- 3,089 MW of External Resources, and
- 173 MW of Energy Efficiency Resources.

OMS-MJSO Survey

The auction results align with the Organization of MISO States (OMS)-MISO Survey Results. The OMS-MISO survey of future planned resource availability by LSEs has been instrumental in highlighting where resource needs may exist on a forward basis and the 2017 survey results once again provided an accurate supply picture for the upcoming Planning Year. We expect to publish the 2018 survey in June of 2018 providing an updated multi-year forward resource assessment.

Renewable Resources

AMERICAN OVERSIGHT

Wind resources comprised about 1.6% of total cleared capacity, for a total of 2,228 MW on a UCAP basis. This equates to 17,000 MW of Installed Capacity. The cleared volume is flat compared to last year due to slight increase in supply offset by a decrease in the Effective Load Carrying Capability (ELCC) and observed output. The MISO 2018-19 wind capacity credit is 15.2% which is a decrease compared to last year's capacity factor of 15.6%.

Solar resources comprised about 0.3% of cleared capacity, for a total of 461 MW. This represents a 282 MW increase (156%) compared to last year's cleared auction results. Currently, in the MISO footprint, solar resources in service less than 12 months receive a 50 percent capacity credit.

Wind and solar resources in service more than one summer operating period receive a capacity credit based upon their historical output.

North-South Flow

The South to North Regional Directional Transfer Limit of 1500 MW did not bind. There was a net flow of 683 MW in the South to North direction due to an increase in lower priced supply in the South. The limit is based upon the implementation of the "Settlement Agreement" with the "Joint Parties" that outlines terms of operations relating to flows between MISO's North and South regions.

Resource Adequacy Next Steps

As outlined in MISO staff's 2015 Resource Adequacy Issues Statement, one of the five guiding principles for MISO's role in supporting resource adequacy is to provide appropriate regional and zonal resource adequacy transparency and awareness.

- Locational Reforms
  - This past March, MISO filed a Locational reform proposal at the Commission for implementation in PY 2019/20. This proposal will:
    - Mitigate potential emerging reliability risk through External Resource Zones (ERZs)
    - Allow limited exceptions for external resources which are electrically equivalent to internal resources
    - Provide a hedging mechanism to limit price separation risk for historical arrangements (Historic Unit Consideration, or HUCs)
    - Adjust CIL and CEL assumptions to align with auction inputs
- Resource Availability and Need (RAN)
  - A dramatically changing landscape has made the conversion of committed capacity resources into sufficient energy every hour of the planning year increasingly uncertain. MISO's role as the regional grid operator requires us to understand and develop strategies to manage operational risks and ensure reliability. With reserve margins nearing target requirements, operational uncertainty is increasing due to a number of concurrent issues, including an evolving resource portfolio, extreme weather events, fuel delivery issues, and economic factors and regulatory changes. As a result, MISO is focusing on improving alignment of Resource Availability and Need across all time frames within the year, not just the winter, broadening the scope of issues to be explored.
  - In April, a RAN Issue Paper was posted with Reliability Subcommittee (RSC) meeting materials. The summary identified three broad areas for improvement on RAN-related issues:
    - Increasing transparency of resource availability and need
    - Refining resource availability requirements
    - Improving price signals.

    MISO will continue to discuss these issues with stakeholders through the RSC and other committees as assigned.
- Competitive Retail Areas - State Resource Adequacy Solutions
  - MISO's objective continues to support state processes around resource adequacy planning, and we will continue to work with Illinois policymakers on further developing a state-based approach to fully address long term resource adequacy requirements.

We plan to continue to keep the Commission apprised of the RAN and IL efforts as they advance. Feel free to let me

AMERICAN OVERSIGHT

know if you have any questions.
-Derek

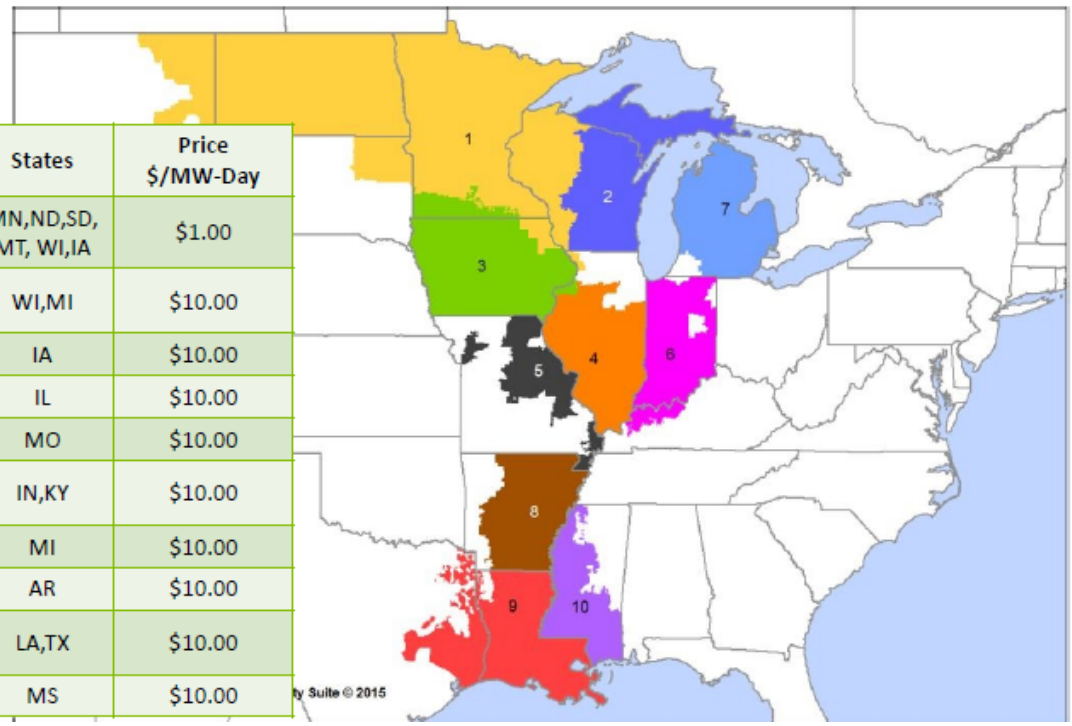
Derek Bandera
Executive Director, Federal Regulatory Affairs
MISO

202-674-4909
dbandera@misoenergy.org

505 9th Street, NW
Suite 1000
Washington, DC 20004

# 2018/2019 Auction Clearing Price Overview

| Zone | States | Price $/MW-Day |
|---|---|---|
| 1 | MN,ND,SD, MT, WI,IA | $1.00 |
| 2 | WI,MI | $10.00 |
| 3 | IA | $10.00 |
| 4 | IL | $10.00 |
| 5 | MO | $10.00 |
| 6 | IN,KY | $10.00 |
| 7 | MI | $10.00 |
| 8 | AR | $10.00 |
| 9 | LA,TX | $10.00 |
| 10 | MS | $10.00 |




AMERICAN OVERSIGHT

**From:** Janet Sena
**To:** Anthony Pugliese; Tracy Adamsky; Michelle R. Brown
**Cc:** Aundrea Posey
**Subject:** NERC meeting dates
**Date:** Wednesday, April 18, 2018 5:24:37 PM

---

Per discussion, the following are future meeting dates for the NERC Member Representatives Committee and Board of Trustees meetings. We understand the Chairman can't make the meeting in May, but are providing the following to you for planning purposes. We'll be in touch prior to each meeting. Have a great day!

**2018 Dates**
May 9-10 Washington, D.C. (LaFleur will attend MRC; Glick will attend BOT)
August 15-16 Calgary, Canada
November 6-7 Atlanta, GA

**2019 Dates**
February 6-7 Manhattan Beach, CA
May 8-9 St. Louis, MO
August 14-15 Quebec City, Canada
November 5-6 Atlanta, GA

**Janet Sena**
**Senior Vice President and Director of Policy and External Affairs**
North American Electric Reliability Corporation
1325 G Street NW Suite 600
Washington, DC 20005
202-644-8067 office | (b) (6) cell
janet.sena@nerc.net
**Reliability | Accountability**

This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.

AMERICAN OVERSIGHT

**From:** Gasteiger, Larry
**To:** Anthony Pugliese
**Subject:** New Jersey zero emissions bill
**Date:** Thursday, April 12, 2018 6:33:35 PM

Hi Anthony. I wanted to make sure you heard that late this afternoon the NJ legislature passed the zero emissions bill, which creates a process for nuclear plants like ours to apply for zero emissions credits. The bill now goes to the Governor for his consideration. If you have any questions, let me know.

Larry

Larry Gasteiger
Chief, Federal Regulatory Policy
PSEG
601 New Jersey Ave., NW, Suite 310
Washington, DC 20001

Office: (202) 408-7581
Email: larry.gasteiger@pseg.com



The information contained in this e-mail, including any attachment(s), is intended solely for use by the named addressee(s). If you are not the intended recipient, or a person designated as responsible for delivering such messages to the intended recipient, you are not authorized to disclose, copy, distribute or retain this message, in whole or in part, without written authorization from PSEG. This e-mail may contain proprietary, confidential or privileged information. If you have received this message in error, please notify the sender immediately. This notice is included in all e-mail messages leaving PSEG. Thank you for your cooperation.

AMERICAN OVERSIGHT

**From:** Alex DeBoissiere
**To:** Anthony Pugliese
**Subject:** New York State Storm Outages
**Date:** Tuesday, April 10, 2018 2:12:58 PM
**Attachments:** Letter to NYSEG re Winter Storm Riley & Quinn Power Outages.pdf
2018-03-23 Response Letter to Senators Schumer and Gillibrand.pdf

---

Anthony, Here are the correspondence last month between our NY utilities and the NY Senators. Our staffs continue to discuss this matter and keep the Senator's offices updated. The NYPSC is currently looking into our response to the outages. Please let us know if you have any questions or would like additional information.

With regards,

Alex DeBoissiere
SVP AVANGRID
202 309-1699

Disclaimer This e-mail, and any attached file(s), is intended solely for the use of the individual or entity to whom this e-mail is addressed and may contain information that is privileged, confidential or exempt from disclosure. If you are not one of the named recipient(s) or otherwise have reason to believe that you have received this message in error, please notify the sender and delete this message immediately from any computer. Any other use, retention, dissemination, retransmission, printing or copying of this e-mail or its contents (including any attached files) is strictly prohibited.

AMERICAN OVERSIGHT

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Laura Swett; Angela Amos; Nicholas Gladd; Carolyn Clarkin; Anthony Pugliese
**Cc:** Martin Kirkwood
**Subject:** New York Transco
**Attachments:** NY Transco Brief Overview. FERCpptx.pdf
Nachmias Transco Bio June 2016.pdf
Evan C. Reese III-Day Pitney Biography.pdf
Dumais Transco Bio 2-23-18.pdf

---

Attendees:
Stuart Nachmias, President, New York Transco, LLC
Paul A. Dumais, VP, Regulatory Affairs and Compliance, New York Transco, LLC
Evan C. Reese III, Day Pitney, LLP

Text of Original Request:

Name: Paul Dumais
Title: VP Regulatory
Company / Organization: NY Transco
Phone Number: (b) (6)
Web Address:
Email: paul.dumais@nytransco.com <mailto:paul.dumais@nytransco.com?subject=RE:%20Request%20for%20a%20Meeting%20with%20Chairman%20Neil%20Chatterjee>
Purpose of Meeting (Detailed Description): Introduce Chair McIntyre to NY Transco and discuss items of importance. Need 30 minutes. I am trying to coordinate individual meetings with each commissioner over two consecutive days. Attending will be the five NY Transco officers.
Is this matter before the Commission? No
Proposed Date for Meeting: 2/26-3/2, 3/5 and 3/6
Alternate Date for Meeting: See proposed dates
Estimate of the Number of people attending: Five

*This request was discussed and agreed upon at the 3/13 scheduling meeting.

AMERICAN OVERSIGHT

**From:** Glazer, Craig

**To:** Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anna Cochrane; Anthony Pugliese; Anton Porter; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Brett Rendina; (b) (6) Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; Daniel Nowak; David Morgenoff; (b) (6) David Ortiz; Elizabeth Salerno; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; (b) (6) ; Jessica Cockrell; Jette Gebhart; Jignasa Gadani; John Shepherd; Jorge Moncayo; Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kimberly Bose; Kris Fitzpatrick; Kurt Longo; Larry Parkinson; LaShawn Dickens; Laura Swett; Leonard Tao; Leslie Kerr; Lindsee Gentry; Matthew Christiansen; Meghan Estenson; (b) (6) ; Michelle R. Brown; Mindi Sauter; Neil Chatterjee; Nicholas Gladd; Nils Nichols; (b) (6) ; Patricia Smith; (b) (6) ; Rich Glick; Rikardo Hull; Robert F. Powelson; Robert Ross; Steven Wellner; Tracy Adamsky; Travis Fisher

**Subject:** News Items from PJM---Results of Reliability Analysis of First Energy Nuclear Plant Deactivations and New PJM Fuel Security Initiative

**Date:** Monday, April 30, 2018 9:22:24 AM

**Attachments:** 20180430 News Release Fuel Security Initiative DRAFT .pdf
05032018 - TEAC - Generation Deactivation Notification.pptx
Valuing Fuel Security.pdf

---

I am providing to you copies of three documents which we are releasing publicly later this morning. We will be prepared to discuss each of these at our meeting with Staff at 3PM this afternoon:

1. PJM is today unveiling to stakeholders the next phase of its work at valuing fuel secure resources in our market. Specifically, as indicated in the attached press release and "Valuing Fuel Security" document, we are undertaking an intensive review of specific fuel security needs in our region in the next phase of an analysis that began with the release of our 2017 study analyzing key attributes of a resilient fuel secure system. That work was cited approvingly by DOE in its August, 2017 report.

   In this next phase, we will be both analyzing specific future potential fuel supply constraints on the PJM system and will look to include any such identified constraints in our capacity market so as to ensure a resilient grid and value fuel secure resources needed at different locations on the PJM system. Given the diversity of the system, the supply chain constraints are quite different in different locations on the system with generators located adjacent to shale gas wells representing a far different degree of supply chain risk than more distant generators depending on single natural gas lateral pipelines with limited back-up oil supplies. As a result, our analysis will be locational in nature. The PJM capacity market today prices those locational constraints for transmission constraints and under this new initiative being announced today, fuel security constraints could similarly be modeled and priced, using a market-based approach, through the market clearing mechanism. We have targeted to have the study completed in six months and any subsequent market changes to be in place for the following capacity auction which occurs in May of 2019 and is forward looking.

2. In addition to this work, PJM will be announcing today that consistent with its tariff, it undertook its traditional reliability review of the announced deactivations of First Energy's four nuclear plants between the period May, 2020 and October, 2021. The PJM system remains strong and the PJM analysis being released today reveals that the nuclear units can deactivate at their announced schedule without triggering reliability issues that would cause a violation of reliability criteria established by the North

AMERICAN OVERSIGHT

American Electric Reliability Corporation (NERC) and the Federal Energy Regulatory Commission (FERC). The fuel security review announced above will ensure a more resilient grid to respond to extreme events. But as indicated by this announcement, the system today and into the future fully meets the NERC and FERC reliability requirements even with the deactivation of these nuclear units.

I wanted to provide to you this transmittal of these public documents which are expected to be released later this morning.

Please feel free to contact me should you need further information. We will be prepared to discuss at 3PM today.

**CRAIG GLAZER**
Vice President-Federal Government Policy
PJM Interconnection, LLC—D.C. Office

Suite 600
1200 G Street, N.W.
Washington, D.C. 20005
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Laura Swett; Nicholas Gladd; Carolyn Clarkin; Angela Amos; Anthony Pugliese
**Cc:** Martin Kirkwood
**Subject:** North American Energy Standards Board
**Attachments:** Alex DeBoissiere Bio.doc
Jonathan Booe bio.docx
McQuade_biography.docx
Michael Desselle Bio.docx
naesb_bulletin_vol10_issue3.pdf
retail_2018_annual_plan.docx
weq_2018_annual_plan.docx
wgq_2018_annual_plan.docx
ELJ Article.pdf
Membership Report - ME March 2018.docx
NAESB Work Products 120817.doc

---

Attendees:

Rae McQuade, President of NAESB
Jonathan Booe, Executive Vice President and CAO of NAESB
Michael Desselle, Chairman of NAESB
Alex DeBoissiere, member of the NAESB Advisory Council and Board of Directors

Text of Original Request:

Dear Michelle Brown and Tracy Adamsky (Chairman McIntyre) and Benjamin Williams and Adriane Bowman (Commissioner Glick)

Rae McQuade, President of the North American Energy Standards Board (NAESB) and Jonathan Booe, Executive Vice President and CAO, would like to schedule brief update meetings (no more than 30 minutes to one hour based on the Chairman's/Commissioners' schedules) with Chairman McIntyre and Commissioner Glick. The update would address NAESB review of annual plants, the status of our surety assessment underway by Sandia National Laboratories and other standards development efforts underway or planned. If there are other topics the Commission would like us to review, please let us know and we will prepare an update for them. These meetings can be separate or combined meetings depending on what works best for your schedules. We would like to schedule the meetings as soon as possible Can you please send me some possible meeting dates that I can check against Rae's calendar? We appreciate your attention to this scheduling matter and feel free to call if you have questions or need additional information from us.

Best regards,
Veronica Thomason
North American Energy Standards Board
801 Travis, Suite 1675, Houston, Texas 77002
(b) (6) (phone), 713-356-0067 (fax)
vthomason@naesb.org <mailto:vthomason@naesb.org>

*This meeting was discussed and agreed upon at the 3/13 scheduling meeting.

AMERICAN OVERSIGHT

**From:** Tracy Adamsky
**To:** Angela Amos
**Cc:** Nicholas Gladd; Carolyn Clarkin; Laura Swett; Anthony Pugliese; Martin Kirkwood
**Subject:** Northern California Power Agency
**Attachments:** NCPA Chairman McIntyre meeting request April 2018.doc
NCPA bios for FERC April 2018 meetings.docx

---

Randy Howard, General Manager, NCPA
Scott Tomashefsky, Regulatory Affairs Manager, NCPA
Nicolas Procos, General Manager, Alameda Municipal Power
Vice Mayor David Hagele, City of Healdsburg
Terry Crowley, Utility Director, City of Healdsburg
Heather Dauler, Senior Resource Planner, City of Palo Alto
Debra Lloyd, Utilities Compliance Manager, City of Palo Alto
Basil Wong, Utility Business Administrator, Port of Oakland
Chris Romero, Government Relations Analyst, Roseville Electric
John Roukema, Electric Utility Director, Silicon Valley Power
Kathleen Hughes, Resource Analyst, Silicon Valley Power
Joseph Horvath, Electric Utility Director, Truckee Donner Public Utilities District
Steven Poncelet, Public Information and Strategic Affairs Representative, Truckee Donner Public Utilities District

Text of original request:

From: Steve Colen
Sent: Monday, April 02, 2018 2:29 PM
To: 'michelle.brown@ferc.gov' <michelle.brown@ferc.gov <mailto:michelle.brown@ferc.gov> >
Subject: Meeting request from the Northern California Power Agency

Attached is a meeting request letter from members of NCPA who will be in D.C. in mid- April for their yearly policy forum. Members are hoping to meet with Chairman McIntyre on either Tuesday, April 17th or Wednesday, April 18th.

We understand that the Chairman and Commissioners will be testifying on the morning of April 17th. Hopefully, there may be some time that afternoon or anytime the next day for a meeting. We do have a meeting scheduled w/ Commissioner Glick on April 17th at 3:30pm

As noted in the letter, I am the contact person for scheduling the meeting and I can be reached either via this email or at (b) (6)

Also attached are bios of those expected to attend the meeting.

Thank you for your consideration and I hope to hear from you at your earliest convenience.

Stephen J. Colen
Office Administrator
Kanner & Associates, LLC
400 North Capital Street, N.W.
Suite 594
Washington, D.C. 20001
P: (b) (6)
F: (202) 624-3506
http://www.kannerandassoc.com <http://www.kannerandassoc.com/>

AMERICAN OVERSIGHT

**From:** Glazer, Craig

**To:** Adriane Bowman; Andrea Spring; Bryson, Mike E.; Andrew Holleman; Andrew Weinstein; Angela Amos; Anthony Pugliese; Anton Porter; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Brett Rendina; Brian George; Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; Daniel Nowak; David Morenoff; David Ortiz; Elizabeth Salerno; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; (b) [redacted]; Jessica Cockrell; Jette Gebhart; Jignasa Gadani; John Shepherd; (b) (6) [redacted] (6); Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kimberly Bose; Kris Fitzpatrick; Kurt Longo; Larry Parkinson; LaShawn Dickens; Laura Swett; Leonard Tao; Leslie Kerr; Lindsee Gentry; Matthew Christiansen; Meghan Estenson; [redacted] Michelle R. Brown; Mindi Sauter; Neil Chatterjee; Nicholas Gladd; Nils Nichols; Pamela Quinlan; Patricia Smith; (b) (6) [redacted]; Rich Glick; Rikardo Hull; Robert F. Powelson; Robert Ross; Steven Wellner; Tracy Adamsky; Travis Fisher; Bresler, Frederick S. (Stu) III; Anna Cochrane

**Subject:** NOTE New Start Time at 3PM --Meeting with PJM and FERC Staff to Review Results of PJM Nuclear Plant Retirement Analysis and PJM Fuel Security Initiative

---

NOTE NEW START TIME AT 3PM EDT.
Based on the doodle poll, I am offering up this one hour slot for an in-person meeting (with a phone option) for PJM to brief FERC Staff on the announcement we are making on Monday re: our analysis of the First Energy nuclear plant retirements as well as our fuel security initiative that we are announcing as well.
We have briefed the Commissioner offices so feel free to attend. In addition, we are attempting through this meeting to reach out to various FERC offices. Feel free to forward to Staff members in your department.
I will work to provide you with the materials from our announcement on Monday prior to our call.
Any problems, call Craig Glazer on cell at (b) (6) [redacted].

AMERICAN OVERSIGHT

| | |
|---|---|
| **From:** | Glazer, Craig |
| **To:** | Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anthony Pugliese; Anton Porter; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Brett Rendina; Brian George; Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; Daniel Nowak; David Morenoff; David Ortiz; Elizabeth Salerno; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; Janel Burdick; Jesse Hensley; Jessica Cockrell; Jette Gebhart; Jignasa Gadani; John Shepherd; Jorge Moncayo; Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kimberly Bose; Kris Fitzpatrick; Kurt Longo; Larry Parkinson; LaShawn Dickens; Laura Swett; Leonard Tao; Leslie Kerr; Lindsee Gentry; Matthew Christiansen; Meghan Estenson; Michael P. McLaughlin; Michelle R. Brown; Mindi Sauter; Neil Chatterjee; Nicholas Gladd; Nils Nichols; Pamela Quinlan; Patricia Smith; Peter Rolashevich; Rich Glick; Rikardo Hull; Robert F. Powelson; Robert Ross; Steven Wellner; Tracy Adamsky; Travis Fisher |
| **Cc:** | Schuhart, Denise; Glazer, Craig |
| **Subject:** | Offering Brieifng on PJM Analysis of First Energy Proposed Nuclear Plant Deactivation and PJM Fuel Security Initiative |
| **Date:** | Wednesday, April 25, 2018 11:04:55 AM |

PJM is scheduled to release on Monday the results of its required reliability analysis resulting from First Energy's notice of intent to deactivate its four Ohio and Pennsylvania nuclear units. In addition to the release of that reliability analysis, we will also be releasing a concept paper outlining our plans to model future locational fuel security constraints for potential inclusion as constraints to be considered in our procurement of capacity. This model is designed to address any identified fuel security issues(or other issues such as cybersecurity or physical vulnerabilities associated with generating units) in a fuel neutral way continuing to use the competitive procurement processes already embedded in PJM's market design rather than having the Secretary of Energy or others 'choose' particular technologies or units.

I would welcome the opportunity for us to brief you on both of these releases through a combination of folks in person and on the phone.

I would like to offer up some dates and times for such a briefing. To avoid a 'free for all' of different times and a sea of e-mail responses, I am suggesting utilizing the following doodle poll so we can assess times when a critical mass of individuals would be available for one or two briefings on the matter.

https://doodle.com/poll/fxs52rxrbh7r9pv7

**CRAIG GLAZER**
Vice President-Federal Government Policy
PJM Interconnection, LLC—D.C. Office

Suite 600
1200 G Street, N.W.
Washington, D.C. 20005
202-423-4743
Craig.Glazer@PJM.COM

This message and any attachments are confidential, and may contain information that is subject to the attorney-client privilege, proprietary, or otherwise legally exempt from disclosure. If you have received this message in error, please notify the sender immediately by email or telephone and delete all copies of this message from your email system. Thank you.

AMERICAN OVERSIGHT

AMERICAN OVERSIGHT

**From:** Glazer, Craig

**To:** Adriane Bowman; Andrea Spring; Andrew Holleman; Andrew Weinstein; Angela Amos; Anna Cochrane; Anthony Pugliese; April Ballou; Arnie Quinn; Becky Robinson; Benjamin Williams; Bikash Thapliya; Brett Rendina; Brian George; Cameron Schilling; Carolyn Clarkin; Catherine Giljohann; Cheryl LaFleur; Christy Walsh; Craig Cano; Daniel Nowak; David Andrejcak; David Morenoff; David Ortiz; Elizabeth Salerno; Eric Krall; Eric Vandenberg; Erica Siegmund Hough; Geof Hobday; James Danly; Janel Burdick; Jehmal Hudson; Jennifer Fletcher; Jesse Hensley; Jessica Cockrell; Jette Gebhart; Jignasa Gadani; John Karp; John Peschke; John Sillin - OE; Jonathan Fernandez; Jonathan First; Jorge Moncayo; Joseph McClelland; Kathleen Benard; Kevin McIntyre; Kris Fitzpatrick; Kristen Fleet; Kurt Longo; Larry Parkinson; LaShawn Dickens; Laura Swett; Lawrence Greenfield; Leonard Tao; Leslie Kerr; Lindsee Gentry; Maria Vouras; Mark Hegerle; Martin Kirkwood; Mary O"Driscoll; Matthew Christiansen; Meghan Estenson; Michael Goldenberg; Michael P. McLaughlin; Michelle R. Brown; Mindi Sauter; Nancy Bowler; Neil Chatterjee; Nicholas Gladd; Kumar Agarwal; Pamela Quinlan; Patricia Smith; Peter Rolashevich; Rich Glick; Richard O"Neill; Rikardo Hull; Robert F. Powelson; Robert Ross; Roger Morie; Sandra Waldstein; Sarah Crawford; Scott Everngam; Steven Michals; Steven Reich; Steven Wellner; Tracy Adamsky; Tristan Cohen; Valerie Martin; Vinay Tripathi; Travis Fisher; John Shepherd Jr.

**Cc:** Glazer, Craig

**Subject:** PJM Interconnection, L.L.C."s Capacity Repricing Filing

**Date:** Monday, April 9, 2018 11:22:11 AM

**Attachments:** 20180409-er18-1314-000-Capacity Repricing_MOPR-Ex.pdf

---

Please find attached a courtesy copy of PJM's Capacity Repricing document filed this morning.

**CRAIG GLAZER**
Vice President-Federal Government Policy
PJM Interconnection, LLC—D.C. Office

Suite 600
1200 G Street, N.W.
Washington, D.C. 20005
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

| | |
|---|---|
| **From:** | Jorge Moncayo |
| **To:** | Commissioners" Assistants; Arnie Quinn; Becky Robinson; Christy Walsh; Kurt Longo; Daniel Nowak; David Morenoff; David Ortiz; Geof Hobday; James Danly; Janel Burdick; Jesse Hensley; Jignasa Gadani; Jette Gebhart; Anna Cochrane; Caroline Wozniak; John Shepherd; Joseph McClelland; Larry Parkinson; Leonard Tao; Leslie Kerr; Michael P. McLaughlin; Nils Nichols; Deepak Ramlatchan; Alicia Kliner; Anna Fernandez; Rachael Marsh; Jehmal Hudson; Sandra Waldstein |
| **Cc:** | Brett Rendina; Robert Ross; Kristen Fleet; Valerie Martin; Anthony Pugliese; Ben Foster; Thomas Dautel; David Burns; Jonathan Cook; Angela Amos; Lindsee Gentry; Jessica Cockrell; Rikardo Hull; Brian George; Mindi Sauter; Nicholas Gladd; Kris Fitzpatrick; Mary O"Driscoll |
| **Subject:** | PJM Staff Briefing re: FirstEnergy Plant Retirements and Fuel Security Initiative |
| **Attachments:** | Valuing Fuel Security.pdf<br>20180430 News Release Fuel Security Initiative DRAFT .pdf<br>05032018 - TEAC - Generation Deactivation Notification.pptx |

*Recent email from Craig (see attachments)*

I am providing to you copies of three documents which we are releasing publicly later this morning. We will be prepared to discuss each of these at our meeting with Staff at 3PM this afternoon:

1. PJM is today unveiling to stakeholders the next phase of its work at valuing fuel secure resources in our market. Specifically, as indicated in the attached press release and "Valuing Fuel Security" document, we are undertaking an intensive review of specific fuel security needs in our region in the next phase of an analysis that began with the release of our 2017 study analyzing key attributes of a resilient fuel secure system. That work was cited approvingly by DOE in its August, 2017 report.

In this next phase, we will be both analyzing specific future potential fuel supply constraints on the PJM system and will look to include any such identified constraints in our capacity market so as to ensure a resilient grid and value fuel secure resources needed at different locations on the PJM system. Given the diversity of the system, the supply chain constraints are quite different in different locations on the system with generators located adjacent to shale gas wells representing a far different degree of supply chain risk than more distant generators depending on single natural gas lateral pipelines with limited back-up oil supplies. As a result, our analysis will be locational in nature. The PJM capacity market today prices those locational constraints for transmission constraints and under this new initiative being announced today, fuel security constraints could similarly be modeled and priced, using a market-based approach, through the market clearing mechanism. We have targeted to have the study completed in six months and any subsequent market changes to be in place for the following capacity auction which occurs in May of 2019 and is forward looking.

2. In addition to this work, PJM will be announcing today that consistent with its tariff, it undertook its traditional reliability review of the announced deactivations of First Energy's four nuclear plants between the period May, 2020 and October, 2021. The PJM system remains strong and the PJM analysis being released today reveals that the nuclear units can deactivate at their announced schedule without triggering reliability issues that would cause a violation of reliability criteria established by the North American Electric Reliability Corporation (NERC) and the Federal Energy Regulatory Commission (FERC). The fuel security review announced above will ensure a more resilient grid to respond to extreme events. But as indicated by this announcement, the system today and into the future fully meets the NERC and FERC reliability requirements even with the deactivation of these nuclear units.

I wanted to provide to you this transmittal of these public documents which are expected to be released later this morning.

*Time change*

PJM would like to brief staff regarding:

1) PJM's reliability analysis of the FirstEnergy nuclear plant retirements and

2) PJM's upcoming fuel security initiative announcement. From PJM: "We will also be releasing a concept paper outlining our plans to model future locational fuel security constraints for potential inclusion as constraints to be considered in our procurement of capacity. This model is designed to address any identified fuel security issues(or other issues such as cybersecurity or physical vulnerabilities associated with generating units) in a fuel neutral way continuing to use the competitive procurement processes already embedded in PJM's market design rather than having the Secretary of Energy or others 'choose' particular technologies or units."

AMERICAN OVERSIGHT

Please feel free to forward the invite to staff members who should be at the meeting.

Call-in info for anyone who needs it is: 1-800-566-2245, Code: 333598.

AMERICAN OVERSIGHT

| | |
|---|---|
| **From:** | Jorge Moncayo |
| **To:** | Commissioners" Assistants; Arnie Quinn; Becky Robinson; Christy Walsh; Kurt Longo; Daniel Nowak; David Morenoff; David Ortiz; Geof Hobday; James Danly; Janel Burdick; Jesse Hensley; Jignasa Gadani; Jette Gebhart; Anna Cochrane; Caroline Wozniak; John Shepherd; Joseph McClelland; Larry Parkinson; Leonard Tao; Leslie Kerr; Michael P. McLaughlin; Nils Nichols; Deepak Ramlatchan; Alicia Kliner; Anna Fernandez; Rachael Marsh; Jehmal Hudson; Sandra Waldstein |
| **Cc:** | Brett Rendina; Robert Ross; Kristen Fleet; Valerie Martin; Anthony Pugliese; Ben Foster; Thomas Dautel; David Burns; Jonathan Cook; Angela Amos; Lindsee Gentry; Jessica Cockrell; Rikardo Hull |
| **Subject:** | PJM Staff Briefing re: FirstEnergy Plant Retirements and Fuel Security Initiative |

*Time change*

PJM would like to brief staff regarding:

1) PJM's reliability analysis of the FirstEnergy nuclear plant retirements and

2) PJM's upcoming fuel security initiative announcement. From PJM: "We will also be releasing a concept paper outlining our plans to model future locational fuel security constraints for potential inclusion as constraints to be considered in our procurement of capacity. This model is designed to address any identified fuel security issues(or other issues such as cybersecurity or physical vulnerabilities associated with generating units) in a fuel neutral way continuing to use the competitive procurement processes already embedded in PJM's market design rather than having the Secretary of Energy or others 'choose' particular technologies or units."

Please feel free to forward the invite to staff members who should be at the meeting.

Call-in info for anyone who needs it is: 1-800-566-2245, Code: 333598.

AMERICAN OVERSIGHT

**From:** InsideSources
**To:** Anthony Pugliese
**Subject:** Pulitzer Prize Winners Moving to PR: What Does That Say About the Future of Journalism?
**Date:** Friday, April 20, 2018 9:01:51 AM

View this email in your browser

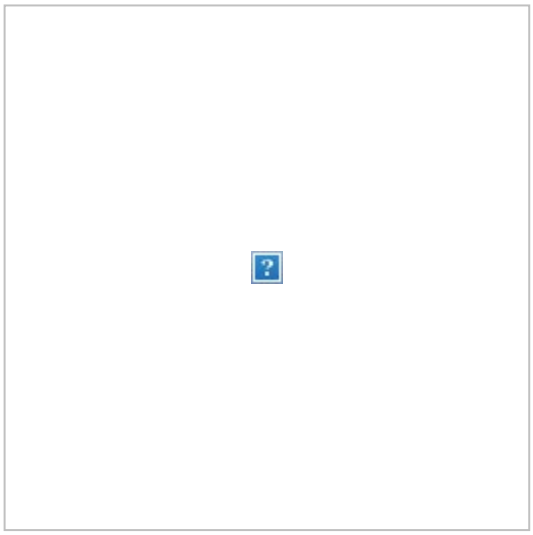
## What Washington's Talking About

'Yes, I'm Running as a Socialist.' Why Candidates Are Embracing the Label in 2018 [Farah Stockman, New York Times]

AMERICAN OVERSIGHT

Mormonism's Global Future [John G. Turner, Wall Street Journal]

The Secrets of a Great First Spouse [Peggy Noonan, Wall Street Journal]



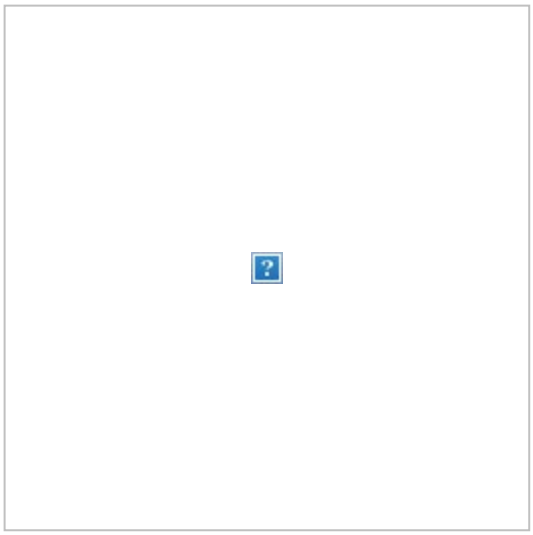
[IS] Opinions ■ Politics

## Josh Rosen Too Rich, Too Smart for the NFL

By Gregory Clay

The whispers: too affluent, too many options in life, too much intellectual curiosity. When they say shut up and play, he isn't listening, and he's made that known in explicit fashion.

READ MORE



News ■ Politics

## Pulitzer Prize Winners Moving to PR: What Does That Say About the Future of Journalism?

By Erin Mundahl

The Pulitzer Prize is the ultimate accolade of American journalism, the mark of the best of the best, or perhaps, the culmination of a lifetime of effort in the field.

READ MORE

News ■ Politics

## Manufacturing Sees Significant Turnaround

By Connor D. Wolf

The manufacturing sector has seen a sharp turnaround over the past year and is now one of the primary drivers of economic growth. President Donald Trump has specifically addressed the plight of the manufacturing sector many times since first launching his campaign.

AMERICAN OVERSIGHT

READ MORE

[IS] Opinions Technology

## The Private Car Is a Miracle — It Gets Better and Better

By Llewellyn King

Today's cars are miraculous, marvelous. They are twice as good as they were just 30 years ago — if you measure them by life expectancy, safety, reliability and comfort.

READ MORE

[IS] Opinions Politics

## Breaking Gridlock: The Postal Service Task Force

By Paul Steidler

On April 12, President Trump issued an executive order to create a high-level task force charged with conducting a comprehensive review of the U.S. Postal Service's operations and finances and recommending reforms.

READ MORE

AMERICAN OVERSIGHT

# Follow InsideSources





Unsubscribe | Update Preferences | Visit Website

AMERICAN OVERSIGHT

**From:** Webb, Erik K
**To:** Terry Turpin
**Cc:** Hugh Thomas; Luketa, Anay; Lopez, Carlos; Rich McGuire; Shannon Jones; John Wood; Heather Campbell; Andrew Kohout; Lord, David L; Doug Foster; Anthony Pugliese; Roybal, Mathew Nathaniel
**Subject:** Re: [EXTERNAL] RE: FERC Learning Trip
**Date:** Tuesday, April 24, 2018 9:40:03 AM

---

Terry / All thanks

Let's have Andrew and Anay work details of the visit.

I will have Matthew Roybal call Doug Foster.

So, some progress - thanks

Erik

---

Erik K. Webb, Senior Manager
Geoscience Research & Applications
Sandia National Laboratories
PO Box 5800, MS 0735
Albuquerque, NM 87185
W: 505-844-9179
M: (b) (6) [redacted]
ekwebb@sandia.gov

On Apr 24, 2018, at 7:48 AM, Terry Turpin <Terry.Turpin@ferc.gov> wrote:

> Thanks Erik,
>
> May 14 week works for us, best approach is to work directly with Andrew Kohout to pick a date / time. I'll work on getting the legal stuff sorted out asap.
>
> Procurement contact on our end is Doug Foster, Chief Financial Officer for FERC, 202-502-6118.
>
> -T.
>
> -----Original Message-----
> From: Webb, Erik K [mailto:ekwebb@sandia.gov]
> Sent: Thursday, April 19, 2018 4:45 PM
> To: Hugh Thomas <Hugh.Thomas@ferc.gov>; Luketa, Anay <aluketa@sandia.gov>; Lopez, Carlos <carlope@sandia.gov>
> Cc: Terry Turpin <Terry.Turpin@ferc.gov>; Rich McGuire <Rich.McGuire@ferc.gov>; Shannon Jones <Shannon.Jones@ferc.gov>; John Wood <John.Wood@ferc.gov>; Heather Campbell <heather.e.campbell@ferc.gov>; Andrew Kohout <Andrew.Kohout@ferc.gov>; Lord, David L <dllord@sandia.gov>
> Subject: FERC Learning Trip

AMERICAN OVERSIGHT

Hugh / Terry

Thank you for this information. I want to respond to our two assignments from this last conversation.

Learning Trip: The best time on SNL's side might be the week of May 14. There are some moderately complicated reasons why some or all of those that need to be in DC can be there. What might work on your end?

Agreements: (b) (5) [redacted]

Shall we plan on a follow on conversation.

Erik Webb

-----Original Message-----
From: Hugh Thomas [mailto:Hugh.Thomas@ferc.gov]
Sent: Wednesday, April 18, 2018 8:05 AM
To: Webb, Erik K <ekwebb@sandia.gov>; Luketa, Anay <aluketa@sandia.gov>
Cc: Terry Turpin <Terry.Turpin@ferc.gov>; Rich McGuire <Rich.McGuire@ferc.gov>; Shannon Jones <Shannon.Jones@ferc.gov>; John Wood <John.Wood@ferc.gov>; Heather Campbell <heather.e.campbell@ferc.gov>; Andrew Kohout <Andrew.Kohout@ferc.gov>
Subject: [EXTERNAL] RE: SNL Support for FERC

Erik/Anay

Andrew Kohout has been out of the office and may not be back in until the end of the week or next week. I wasn't sure if he already sent you the Hazard Modelling Review Projects/Dates and the Flow Chart (attached), but I wanted to make sure you got them.

If you have any questions I will do my best to answer.

Regards,
Hugh Thomas
FERC - LNG Branch 2
202-502-8980

-----Original Message-----
From: Terry Turpin

AMERICAN OVERSIGHT

Sent: Friday, April 06, 2018 5:39 PM
To: 'Webb, Erik K' <ekwebb@sandia.gov>; Anthony Pugliese <Anthony.Pugliese@ferc.gov>
Cc: Steven Cade <steven.cade@hq.doe.gov>; Lopez, Carlos <carlope@sandia.gov>; Morrow, Charles W <cwmorro@sandia.gov>; Griffith, Richard O <rogrif@sandia.gov>; Luketa, Anay <aluketa@sandia.gov>; Adkins, Carol <cladkin@sandia.gov>
Subject: RE: SNL Support for FERC

Hi Erik,

For the follow on discussion re: needs and scope, we'll have myself, John Wood (Deputy), and our two LNG Chiefs: Hugh Thomas and Andrew Kohout (who has worked with Anay before). I'll defer to Anthony on the time and date, but we can make ourselves available Monday afternoon, Tuesday afternoon, or Thursday of next week. Best initial approach is a phone conference to discuss general approach and decide on next steps after you hear our situation. We won't have any slides or visual material.

Best regards,
Terry L. Turpin
Director, Office of Energy Projects
Federal Energy Regulatory Commission
202-502-8558

-----Original Message-----
From: Webb, Erik K [mailto:ekwebb@sandia.gov]
Sent: Thursday, April 05, 2018 11:08 AM
To: Anthony Pugliese <Anthony.Pugliese@ferc.gov>
Cc: Steven Cade <steven.cade@hq.doe.gov>; Lopez, Carlos <carlope@sandia.gov>; Morrow, Charles W <cwmorro@sandia.gov>; Griffith, Richard O <rogrif@sandia.gov>; Luketa, Anay <aluketa@sandia.gov>; Adkins, Carol <cladkin@sandia.gov>
Subject: SNL Support for FERC

Anthony

Thank you for the conversation this morning and your (b) (5) [redacted] I believe our plan is to have a follow on discussion that would include the right team on both sides to talk about needs and if appropriate outline (b) (6) [redacted].

(b) (5) [redacted]

AMERICAN OVERSIGHT

If I heard correctly, Terry Turpin would be one of the participants from the FERC side.

I am just getting back to Albq this evening and it may take a day or so to have the right preparatory conversations. Can we target a conference call or Skype meeting (where we could use slides if needed) early next week (Monday/Tuesday)?

Please let me know the best approach to schedule this meeting between our organizations.

Thank you.

Erik

---

Erik K. Webb, PhD
Senior Manager, Geoscience Research & Applications Group Sandia National Laboratories PO Box 5800, MS 0735 Albuquerque, NM 87185
T: 505-844-9179
M: (b) (6) [redacted]
ekwebb@sandia.gov

AMERICAN OVERSIGHT

**From:** Robert Thormeyer
**To:** Anthony Pugliese; Laura Swett
**Subject:** RE: from UTC--Thank you
**Date:** Friday, April 20, 2018 3:41:30 PM
**Attachments:** Application for Review (final) (signed).pdf

---

Apologies for the resend, but I neglected to send info about Higher Ground and the 6 GHz band. Attached is the application for review of the waiver that we filed last year, and below is the issue brief:

https://utc.org/wp-content/uploads/2018/02/Microwave-Systems-in-the-6-GHz-Band-November-2017-.pdf

We will be in touch.

Thanks!

Rob

**Rob Thormeyer | Director of Communications and Advocacy**
**UTILITIES TECHNOLOGY COUNCIL**
Direct: +1. 202.833.6804 | Mobile: (b) (6)
rob.thormeyer@utc.org
utc.org | networks.utc.org | @UTC_Policy
1129 20th Street, N.W. | Suite 350 | Washington, D.C. 20036 USA

---

**From:** Robert Thormeyer
**Sent:** Friday, April 20, 2018 3:04 PM
**To:** 'anthony.pugliese@ferc.gov' <anthony.pugliese@ferc.gov>; 'laura.swett@ferc.gov' <laura.swett@ferc.gov>
**Subject:** from UTC--Thank you

Anthony, Laura,

Thank you for spending some time with us this morning to discuss the challenges facing utility communications systems. Per our discussion I've attached our Network Baseline Survey, which is a level-set report detailing the kinds of communications systems utilities have and what they use them for. This document is a reference and does not make any policy recommendations.

Additionally, here's a few more issue briefs going into more specifics regarding spectrum bands.

6 GHz https://utc.org/wp-content/uploads/2018/02/Microwave-Systems-in-the-6-GHz-Band-November-2017-.pdf
4.9 GHz https://utc.org/wp-content/uploads/2018/04/2018_01_IssueBrief_4.9_GHz_April_2018_Update.pdf
406-420 GHz https://utc.org/wp-content/uploads/2018/03/2018_03_IssueBrief_406-420_MHz.pdf

AMERICAN OVERSIGHT

Please let us know if you have any additional questions. We appreciated your time and advice. We look forward to being in touch.

Rob

**Rob Thormeyer | Director of Communications and Advocacy**
**UTILITIES TECHNOLOGY COUNCIL**
Direct: +1. 202.833.6804 | (b) (6)
rob.thormeyer@utc.org
utc.org | networks.utc.org | @UTC_Policy
1129 20th Street, N.W. | Suite 350 | Washington, D.C. 20036 USA

AMERICAN OVERSIGHT

**From:** Joseph McClelland
**To:** Anthony Pugliese
**Subject:** RE: Invitation: EIS Summit IX London
**Date:** Wednesday, April 4, 2018 4:54:15 AM

Thanks Anthony – let me know if you have a few minutes to catch up on some items today.
Joe

**From:** Anthony Pugliese
**Sent:** Tuesday, April 03, 2018 10:18 PM
**To:** Joseph McClelland <Joseph.McClelland@ferc.gov>
**Cc:** [redacted]
**Subject:** Re: Invitation: EIS Summit IX London

Approved

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission

On Mar 28, 2018, at 5:10 AM, Joseph McClelland <Joseph.McClelland@ferc.gov> wrote:

> Good Morning Anthony,
> With this email, I am requesting permission to accept this non-transferrable invitation to attend the 9th Electric Infrastructure Security Summit from the Organizing Co-Chairs; Lord Arbuthnot and Lord Harris from Parliament as well as Congresswoman Yvette Clark. I have attended these sessions in the past and found them to be very valuable and relevant to the work of OEIS.
>
> Please let me know if you need any additional information to assist with your response.
> Thanks,
> Joe
>
> **From:** EIS Council [mailto:coordinator@eissummit.com]
> **Sent:** Tuesday, March 27, 2018 11:18 AM
> **To:** Joseph McClelland <Joseph.McClelland@ferc.gov>
> **Subject:** Invitation: EIS Summit IX London





AMERICAN OVERSIGHT

Congress of the United States

## Electric Infrastructure Security Summit IX, London

The ninth annual world summit on infrastructure security

The Houses of Parliament and in Westminster, June 25-26, 2018

***"Working Together to Secure Our World**:*

*Building Multi-Sector, International, Resilience to Extreme Hazards."*

Dear Mr. McClelland,

We wish to invite you to attend the ninth annual Electric Infrastructure Security Summit we are co-chairing, taking place June 25-26, 2018 at the Houses of Parliament and in Westminster, London.

At EISS IX government and industry leaders and scientists from the United States, the United Kingdom, Israel and many other nations will review critical infrastructure security concerns, exploring best-in-class approaches, worldwide, to build coordinated

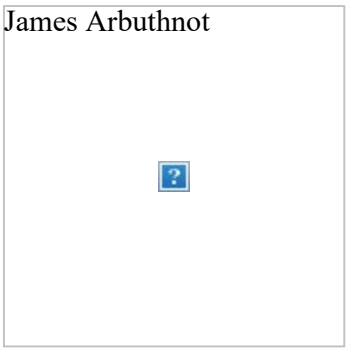
AMERICAN OVERSIGHT

resilience to extreme, "Black Sky" hazards that could fracture our interconnected world. This year, cascading risks associated with manmade threats will be a particular focus of the Summit. Supported by internationally respected experts, facilitated presentations and discussions will open new opportunities to share best practices and resilience initiatives, and build common understanding spanning many critical sectors and nations.

Summit delegates at this invitation-only event represent a global mix drawn from government, industry, academia, and NGO leadership. Speakers at previous summits have included United Kingdom Secretaries of State for Defence, the United States Secretary of Energy, the Chairman of the Federal Energy Regulatory Commission, and U.S. Assistant Secretaries of Defense, Homeland Security, and Energy. This year the agenda for both the Summit Plenary on Day One and the EPRO SECTOR Executive Committee on Day Two will provide extensive opportunities for facilitated, action-oriented discussion focused on Summit themes.

We would be honored if you would join us at EISS Summit IX, and look forward to hearing from you. Please contact our Summit Coordinator at coordinator@eissummit.com, or call one of our offices with questions.

This invitation is non-transferrable. However, if you would like to bring a colleague, please contact the Summit Coordinator.




**The Rt. Hon.**
**The Lord Arbuthnot of Edrom**
Member of the House of Lords
EISS Organizing Co-Chair
Chair London: 020 76920806




**The Lord Harris of Haringey**
Member of the House of Lords
EISS Organizing Co-Chair
London: 020 34329891




**Hon. Yvette D. Clarke**
Member of Congress
EISS Organizing Co-Chair
Washington D.C.: 202-225-6231

**To register online please use the button below:**

Register Here

AMERICAN OVERSIGHT

EIS Council | 840 1st St, NE, 3rd floor, Washington, DC 20002

Unsubscribe joseph.mcclelland@ferc.gov

Update Profile | About our service provider

Sent by coordinator@eissummit.com

AMERICAN OVERSIGHT

**From:** Joseph McClelland
**To:** Anthony Pugliese
**Subject:** RE: Invitation: EIS Summit IX London
**Date:** Thursday, April 5, 2018 5:50:04 AM

---

Let me know when you are ready today…

---

**From:** Anthony Pugliese
**Sent:** Wednesday, April 04, 2018 1:46 PM
**To:** Joseph McClelland <Joseph.McClelland@ferc.gov>
**Subject:** RE: Invitation: EIS Summit IX London

You coming up?

---

**From:** Joseph McClelland
**Sent:** Wednesday, April 04, 2018 10:35 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation: EIS Summit IX London

15 minutes from now work?

---

**From:** Anthony Pugliese
**Sent:** Wednesday, April 04, 2018 10:17 AM
**To:** Joseph McClelland <Joseph.McClelland@ferc.gov>
**Subject:** RE: Invitation: EIS Summit IX London

Yup I am around now

---

**From:** Joseph McClelland
**Sent:** Wednesday, April 04, 2018 4:54 AM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** RE: Invitation: EIS Summit IX London

Thanks Anthony – let me know if you have a few minutes to catch up on some items today.
Joe

---

**From:** Anthony Pugliese
**Sent:** Tuesday, April 03, 2018 10:18 PM
**To:** Joseph McClelland <Joseph.McClelland@ferc.gov>
**Cc:** (b) (6) [redacted]
**Subject:** Re: Invitation: EIS Summit IX London

Approved

Anthony J. Pugliese
Chief of Staff
Federal Energy Regulatory Commission

On Mar 28, 2018, at 5:10 AM, Joseph McClelland <Joseph.McClelland@ferc.gov> wrote:

AMERICAN OVERSIGHT

Good Morning Anthony,
With this email, I am requesting permission to accept this non-transferrable invitation to attend the 9th Electric Infrastructure Security Summit from the Organizing Co-Chairs; Lord Arbuthnot and Lord Harris from Parliament as well as Congresswoman Yvette Clark. I have attended these sessions in the past and found them to be very valuable and relevant to the work of OEIS.

Please let me know if you need any additional information to assist with your response.
Thanks,
Joe

---

**From:** EIS Council [mailto:coordinator@eissummit.com]
**Sent:** Tuesday, March 27, 2018 11:18 AM
**To:** Joseph McClelland <Joseph.McClelland@ferc.gov>
**Subject:** Invitation: EIS Summit IX London





Congress of the United States



## Electric Infrastructure Security Summit IX, London

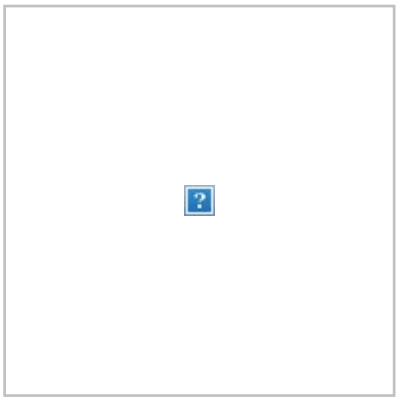
The ninth annual world summit on infrastructure security

The Houses of Parliament and in Westminster, June 25-26, 2018

***"Working Together to Secure Our World**:*

*Building Multi-Sector, International, Resilience to Extreme Hazards."*

AMERICAN OVERSIGHT



Dear Mr. McClelland,

We wish to invite you to attend the ninth annual Electric Infrastructure Security Summit we are co-chairing, taking place June 25-26, 2018 at the Houses of Parliament and in Westminster, London.

At EISS IX government and industry leaders and scientists from the United States, the United Kingdom, Israel and many other nations will review critical infrastructure security concerns, exploring best-in-class approaches, worldwide, to build coordinated resilience to extreme, "Black Sky" hazards that could fracture our interconnected world. This year, cascading risks associated with manmade threats will be a particular focus of the Summit. Supported by internationally respected experts, facilitated presentations and discussions will open new opportunities to share best practices and resilience initiatives, and build common understanding spanning many critical sectors and nations.

Summit delegates at this invitation-only event represent a global mix drawn from government, industry, academia, and NGO leadership. Speakers at previous summits have included United Kingdom Secretaries of State for Defence, the United States Secretary of Energy, the Chairman of the Federal Energy Regulatory Commission, and U.S. Assistant Secretaries of Defense, Homeland Security, and Energy. This year the agenda for both the Summit Plenary on Day One and the EPRO SECTOR Executive Committee on Day Two will provide extensive opportunities for facilitated, action-oriented discussion focused on Summit themes.

We would be honored if you would join us at EISS Summit IX, and look forward to hearing from you. Please contact our Summit Coordinator at coordinator@eissummit.com, or call one of our offices with questions.

This invitation is non-transferrable. However, if you would like to bring a colleague, please contact the Summit Coordinator.

AMERICAN OVERSIGHT

James Arbuthnot



**The Rt. Hon.**
**The Lord Arbuthnot of Edrom**
Member of the House of Lords
EISS Organizing Co-Chair
Chair London: 020 76920806

Toby Harris



**The Lord Harris of Haringey**
Member of the House of Lords
EISS Organizing Co-Chair
London: 020 34329891

Yvette Clarke



**Hon. Yvette D. Clarke**
Member of Congress
EISS Organizing Co-Chair
Washington D.C.: 202-225-6231

**To register online please use the button below:**

Register Here

EIS Council | 840 1st St, NE, 3rd floor, Washington, DC 20002

Unsubscribe joseph.mcclelland@ferc.gov
Update Profile | About our service provider
Sent by coordinator@eissummit.com

AMERICAN OVERSIGHT

**From:** Meghan Estenson
**To:** Anthony Pugliese
**Subject:** RE: Letter of Invitation for the Honorable Kevin J. McIntyre
**Date:** Tuesday, April 10, 2018 4:41:36 PM

Hey Anthony,

Was able to sit down with Rob and go over some scheduling matters. Unfortunately, this is not going to work with his schedule. Thanks for passing our way!

Best,

Meghan

**From:** Anthony Pugliese
**Sent:** Wednesday, March 28, 2018 11:10 AM
**To:** Meghan Estenson <Meghan.Estenson@ferc.gov>; Robert F. Powelson <Robert.Powelson@ferc.gov>
**Subject:** FW: Letter of Invitation for the Honorable Kevin J. McIntyre

Wanted to give you first crack at this if you want it

**Fritz Hirst**
**Director of Legislative & Regulatory Affairs**
North American Electric Reliability Corporation
1325 G Street NW, Suite 600
Washington, DC 20005
202-644-8064 office | (b) (6) cell
fritz.hirst@nerc.net
**Reliability | Accountability**

This email and any attachments are confidential. They may contain legal, professional, proprietary and/or other privileged information. They also may contain information that is subject to copyright belonging to NERC. This email and any attachments are intended solely for the addressee(s). If you are not the intended recipient, do not use the information in this email in any way, permanently delete this email and any attachments and notify the sender immediately.

AMERICAN OVERSIGHT

**From:** Gasteiger, Larry
**To:** Anthony Pugliese
**Subject:** RE: New Jersey zero emissions bill
**Date:** Monday, April 16, 2018 12:28:57 PM

Nothing yet. The governor has 45 days after the bill is passed by the legislature to act on it. If he doesn't sign within 45 days, it automatically becomes law (no pocket veto in NJ).

Larry Gasteiger
Chief, Federal Regulatory Policy
PSEG
601 New Jersey Ave., NW, Suite 310
Washington, DC 20001

Office: (202) 408-7581
Email: larry.gasteiger@pseg.com

**From:** Anthony Pugliese [mailto:Anthony.Pugliese@ferc.gov]
**Sent:** Monday, April 16, 2018 11:54 AM
**To:** Gasteiger, Larry
**Subject:** [EXTERNAL] RE: New Jersey zero emissions bill

Email sent from outside of PSEG. Use caution before using links/attachments.
Anything new on this?

**From:** Gasteiger, Larry [mailto:Larry.Gasteiger@pseg.com]
**Sent:** Thursday, April 12, 2018 6:33 PM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** New Jersey zero emissions bill

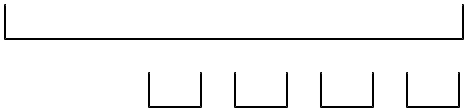
Hi Anthony. I wanted to make sure you heard that late this afternoon the NJ legislature passed the zero emissions bill, which creates a process for nuclear plants like ours to apply for zero emissions credits. The bill now goes to the Governor for his consideration. If you have any questions, let me know.

Larry

Larry Gasteiger
Chief, Federal Regulatory Policy
PSEG
601 New Jersey Ave., NW, Suite 310
Washington, DC 20001

Office: (202) 408-7581
Email: larry.gasteiger@pseg.com

AMERICAN OVERSIGHT



The information contained in this e-mail, including any attachment(s), is intended solely for use by the named addressee(s). If you are not the intended recipient, or a person designated as responsible for delivering such messages to the intended recipient, you are not authorized to disclose, copy, distribute or retain this message, in whole or in part, without written authorization from PSEG. This e-mail may contain proprietary, confidential or privileged information. If you have received this message in error, please notify the sender immediately. This notice is included in all e-mail messages leaving PSEG. Thank you for your cooperation.
The information contained in this e-mail, including any attachment(s), is intended solely for use by the named addressee(s). If you are not the intended recipient, or a person designated as responsible for delivering such messages to the intended recipient, you are not authorized to disclose, copy, distribute or retain this message, in whole or in part, without written authorization from PSEG. This e-mail may contain proprietary, confidential or privileged information. If you have received this message in error, please notify the sender immediately. This notice is included in all e-mail messages leaving PSEG. Thank you for your cooperation.

AMERICAN OVERSIGHT

**From:** Leonard Tao
**To:** Anthony Pugliese
**Subject:** RE: Press Release and guidance document.
**Date:** Monday, April 9, 2018 11:43:37 AM

Got it. Thanks!

**From:** Anthony Pugliese
**Sent:** Monday, April 09, 2018 11:35 AM
**To:** James Danly <James.Danly@ferc.gov>; Mary O'Driscoll <mary.odriscoll@ferc.gov>; Leonard Tao <Leonard.Tao@ferc.gov>
**Subject:** FW: Press Release and guidance document.

**From:** Herrgott, Alex H. EOP/CEQ [mailto:Alexander.H.Herrgott@ceq.eop.gov]
**Sent:** Friday, April 06, 2018 1:41 PM
**To:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** Press Release and guidance document.

Anthony,

It looks like we are going to sign April 9th around 12:30pm at the cabinet meeting. Attached are some of the documents we are using, but they have not all been cleared by Comms yet.

You should get your post ready to go—it will be great.

Alex

AMERICAN OVERSIGHT

**From:** Tracy Adamsky
**To:** Glazer, Craig
**Cc:** Anthony Pugliese
**Subject:** RE: Updating Chairman McIntyre on PJM Discussions with DOE and the White House re: 202 c
**Date:** Monday, April 23, 2018 10:31:10 AM

Hi Craig,

The Chairman will be on travel on the 26th so he will not be available.

Thanks,
Tracy

**From:** Glazer, Craig [mailto:Craig.Glazer@pjm.com]
**Sent:** Thursday, April 19, 2018 6:48 AM
**To:** Tracy Adamsky <Tracy.Adamsky@ferc.gov>
**Cc:** Anthony Pugliese <Anthony.Pugliese@ferc.gov>
**Subject:** Updating Chairman McIntyre on PJM Discussions with DOE and the White House re: 202 c

Tracy:

PJM CEO Andy Ott will be in the FERC building next Thursday April 26 between 2:30 to 5PM . I am writing to see if the Chairman might have a very few moments that Andy could touch base with him either in person or by telephone.
There are many discussions going on with DOE and the White House and I want to ensure full transparency, avoid any surprises and give him the opportunity to provide us any feedback on some of the very preliminary ideas we have discussed with DOE and very much wish to discuss with FERC as well. Anthony and I hope to talk on these subjects as well.

Many thanks. I will wait to hear from you if either a quick meeting or phone call with the Chairman next Thursday would work. If not, let me know another day and time for a phone call on these subjects between the PJM CEO and Chairman McIntyre.

Thank you.

Craig Glazer
PJM
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

**From:** Glazer, Craig
**To:** James Danly; Anthony Pugliese
**Cc:** Schuhart, Denise
**Subject:** Requesting Meeting to Discuss DOE Matter
**Date:** Thursday, April 12, 2018 3:37:41 PM

---

James and Anthony:

We've had some discussions with DOE on possible alternative approaches they could take to simply adopting the requested 202 c relief. As these obviously involve FERC and as I want to make sure you all are comfortable with these still very preliminary concepts, I am writing to see if you'd be willing to meet with me so I can brief you on what we've been thinking about.

I would be available to meet either Wednesday or Thursday of next week after the Commission meeting recognizing that this is quite a busy week for you all with the testimony set for Tuesday and the Commission meeting on Thursday.

If there are others on Staff that you think would be helpful to the meeting or that I should reach out to separately, please let me know.

Craig Glazer
PJM
202-423-4743
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

**From:** Glazer, Craig
**To:** Tracy Adamsky
**Cc:** Anthony Pugliese
**Subject:** Updating Chairman McIntyre on PJM Discussions with DOE and the White House re: 202 c
**Date:** Thursday, April 19, 2018 6:47:52 AM

---

Tracy:

PJM CEO Andy Ott will be in the FERC building next Thursday April 26 between 2:30 to 5PM . I am writing to see if the Chairman might have a very few moments that Andy could touch base with him either in person or by telephone.
There are many discussions going on with DOE and the White House and I want to ensure full transparency, avoid any surprises and give him the opportunity to provide us any feedback on some of the very preliminary ideas we have discussed with DOE and very much wish to discuss with FERC as well. Anthony and I hope to talk on these subjects as well.

Many thanks. I will wait to hear from you if either a quick meeting or phone call with the Chairman next Thursday would work. If not, let me know another day and time for a phone call on these subjects between the PJM CEO and Chairman McIntyre.

Thank you.

Craig Glazer
PJM
(b) (6)
Craig.Glazer@PJM.COM

AMERICAN OVERSIGHT

**From:** Tracy Adamsky on behalf of Kevin McIntyre
**To:** Anthony Pugliese; Angela Amos; Carolyn Clarkin; Nicholas Gladd; Laura Swett
**Cc:** Martin Kirkwood
**Subject:** Utilities Technology Council
**Attachments:** Joy_Ditto.pdf
Sharla_Artz.pdf
Rob_Thormeyer.pdf

---

Attendees:
Joy Ditto, CEO
Sharla Artz
Robert Thormeyer, Director of Communications and Advocacy

Text of Original Request:

Good morning Michelle!

I hope this note finds you well. On behalf of the Utilities Technology Council, we'd like to set up a meeting with Chairman McIntyre to introduce him to UTC, our senior staff, and our policy issues. This is largely a standard meet-and-greet. Would he have some time perhaps during the week of February 5? We are local so we can look for a time that works best for him and his staff.

Thank you and hope you are well!

Rob

Rob Thormeyer | Director of Communications and Advocacy
UTILITIES TECHNOLOGY COUNCIL
Direct: +1. 202.833.6804| Mobile: (b) (6)
rob.thormeyer@utc.org <mailto:rob.thormeyer@utc.org>
utc.org <https://utc.org/> | networks.utc.org <http://networks.utc.org/home> | @UTC_Policy <https://twitter.com/UTC_Policy>
1129 20th Street, N.W. | Suite 350 | Washington, D.C. 20036 USA

AMERICAN OVERSIGHT

| | |
|---|---|
| **From:** | Robert W. Gee |
| **To:** | john.betkoski@ct.gov; Boyd Dunn; Justin Olson; Oliva, Sadzi; Mathews, Talina R (PSC); Mary.Purvis@ky.gov; ryan.silvey@psc.mo.gov; bjohnson@mt.gov; Katz, Elin; McCabe, Brooks; Thompson, Dave; Rhodes, John (DPS); Bethany.Allen@puco.ohio.gov; Asim.Haque@puco.ohio.gov; Fedorchak, Julie L.; Schuh, John M.; Kara Brighton Fornstrom; Melisa Mizel; Thad Levar; Huebsch, Mike - PSC; Danielle Byrnett; David Springe; Alan James; Eric Weng; John Quackenbush; kenneth.adams@tiaainvestments.com; karen_choi@capgroup.com; John Bear; john.colella@moelis.com; Haggarty, Michael; sfleishman@wolferesearch.com; Connor, Ian C; scott.brown@exeloncorp.com; Sesh.Raghavan@Evercore.com; Moeller, Phil; Skiles Boyd; Teresa.hatchell@wisconsin.gov; Anthony Pugliese; ralph.izzo@pseg.com; patti.poppe@cmsenergy.com; james.torgerson@avangrid.com |
| **Cc:** | Lynne Fowler; Elizabeth Stipnieks; Richard McMahon; Lyn, Ivy; Debra Henry; McElrath, Sheena; Vaughns, Jeanne R (DPS); Jacqueline Parker; Delgado, Gerardo; Haretoun, Janel; Neuner, Joyce; McGlothlin, Shonette; Hallenbeck, Jodi (DPS); Haugen, Amy M.; Cook, Pamela - PSC; Michele Lents; judy.lowery@puco.ohio.gov; Haretoun, Janel; Amanda.Ho@aps.com; Murray, Jennifer; James, Devin; Tracy Adamsky; Beth Dullea; thillman@misoenergy.org |
| **Subject:** | Utility Commissioners/Wall St. Dialogue on April 30 - May 2, 2018 in New York City -- Final Agenda, Roster, and Biographies of All Participants |
| **Date:** | Tuesday, April 24, 2018 10:39:17 PM |
| **Attachments:** | 3EB87906-D952-409D-9CC4-284962ADEECB.png<br>2018 May WSD Agenda_FINAL.doc<br>WSD NYC_Roster_May 2018.docx<br>WSD NYC May 2018_Commissioner Consumer Advocate and Staff Bios.docx<br>WSD NYC May 2018 Panelists Bios.docx<br>Gee Fowler Bios_2018.doc |

---

**Dear Participants for the Utility Commissioners/Wall St.Dialogue:**

For next week's Dialogue, please find the following:

- Final Agenda
- Final Roster with contact information of all participants
- Biographies of all participants

Our lodging and location of the dialogue will be at the **Hyatt Centric Times Square New York, 135 W. 45th St., New York, NY.**

Attire for the Wall St. Dialogue will be business dress. (However, business casual or "travel clothes" would be fine for the Monday welcome dinner at Morton's The Steakhouse Midtown, 551 5th Avenue (on 45th, between 5th and Madison).

If you need to reach us while in New York City, our mobile numbers are:

Bob Gee — (b) (6)
Lynne Fowler — (b) (6)

Please enjoy your stay in New York next week, and we look forward to seeing you all.

Kind regards,
Bob

Robert W. Gee
President
Gee Strategies Group LLC
7609 Brittany Parc Court
Falls Church, VA 22043
+1.703.593.0116 (US Main & Mobile)

AMERICAN OVERSIGHT

+1.703.698.2033 (US Landline & Fax)
(b) (6) (China Mobile)
Email: rwgee@geestrategies.com
www.geestrategies.com
Policy Analysis|Advocacy|Litigation Support
Gee Strategies Group, LLC
WASHINGTON | AUSTIN

AMERICAN OVERSIGHT